

Draft

SAN RAMON VALLEY RECYCLED WATER PROGRAM PUMP STATION R3000 PROJECT

Initial Study and Mitigated Negative Declaration

Prepared for
East Bay Municipal Utility District

October 2018



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SECTION S.0

Summary

S.1 Background

The San Ramon Valley Recycled Water Program (SRVRWP) supplies recycled water to portions of the Dublin San Ramon Services District (DSRSD), Pleasanton, and East Bay Municipal Utility District (EBMUD) water service areas in the San Ramon and Dougherty valleys. Refer to Section 1.1 for additional background information.

S.2 Project Objectives and Overview

The objective of the SRVRWP Pump Station R3000 Project (Project) is to enhance delivery of recycled water to the San Ramon, Danville and Blackhawk communities in the future to help meet EBMUD's long-range water supply needs. The Project would include a new recycled water pump station with a capacity of about 5.6 million gallons per day, plus pipelines to connect the pump station to an existing transmission main in Dougherty Road.

S.3 Purpose of Mitigated Negative Declaration

This Mitigated Negative Declaration (MND) assesses the potential environmental impacts related to the Project proposed by EBMUD and has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and guidelines in which EBMUD is the lead agency. EBMUD has incorporated mitigations into the Project to mitigate the potentially significant impacts identified in the Initial Study such that no significant impacts would occur. These mitigations are summarized in the Mitigation Monitoring and Reporting Plan (MMRP) presented in Appendix D.

S.4 Summary of Environmental Considerations

Based on the results of the Initial Study, project-related construction work could potentially generate environmental impacts to aesthetic, biological and cultural resources. Mitigation measures incorporated into the Project that would reduce impacts to less-than-significant levels are described in Chapter 2 of this MND. Long-term pump station operations would not generate any significant impacts. EBMUD determined that an MND is the appropriate level of CEQA review for this Project. The mitigation measures that have been incorporated in the Project are included in the MMRP presented in Appendix D.

SECTION 1.0

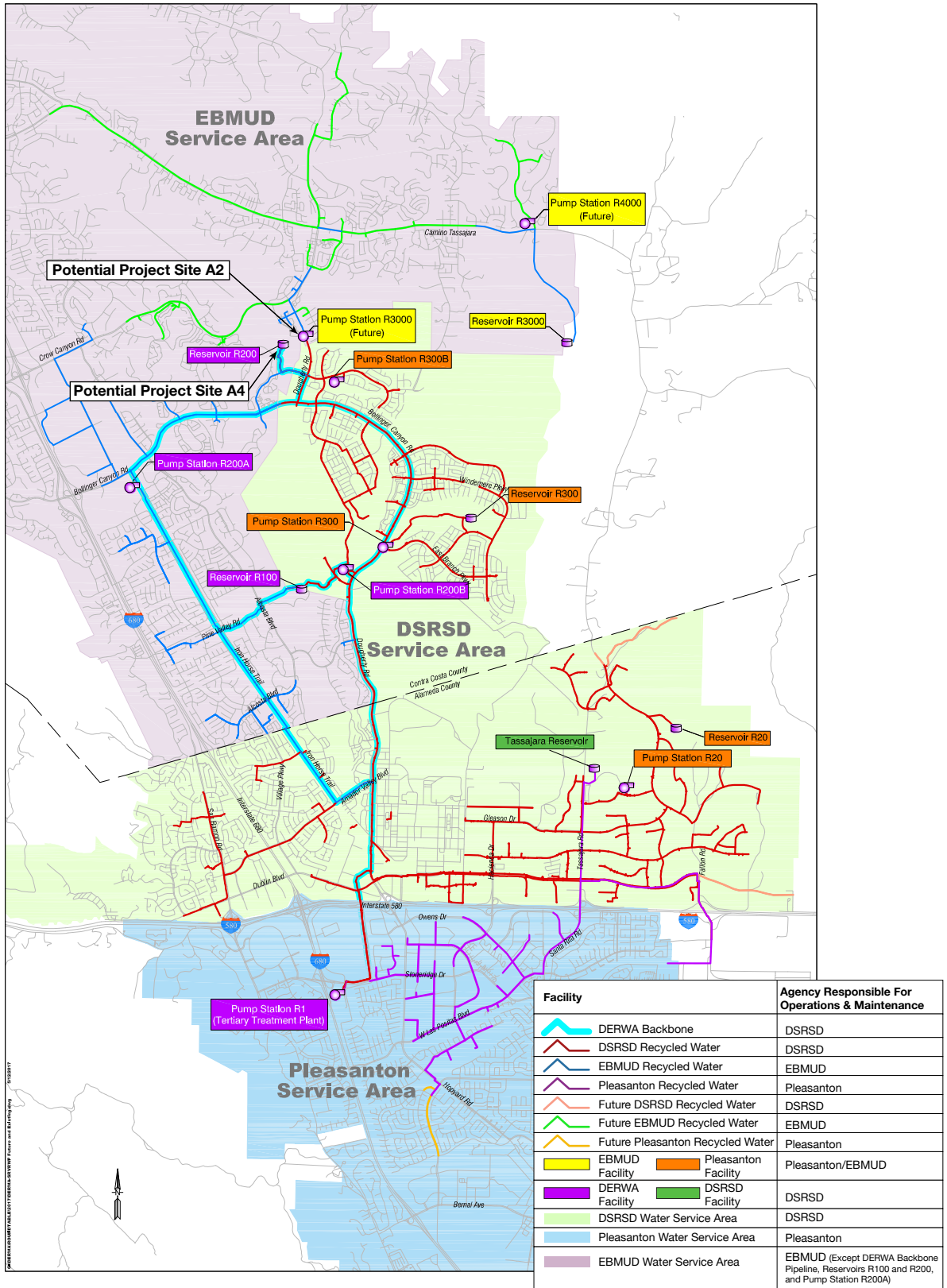
Project Description

1.1 Introduction and Background

The San Ramon Valley Recycled Water Program (SRVRWP) supplies recycled water to portions of the Dublin San Ramon Services District (DSRSD), Pleasanton, and East Bay Municipal Utility District (EBMUD) water service area in the San Ramon and Dougherty valleys as shown in Figure 1. The SRVRWP began deliveries to customers in 2006. The DSRSD•EBMUD Recycled Water Authority (DERWA) is a Joint Powers Authority formed in 1995 between the DSRSD and the EBMUD. DERWA provides recycled water through SRVRWP transmission facilities to EBMUD, DSRSD and Pleasanton for distribution to customers that can use recycled water for irrigation. EBMUD provides retail potable and recycled water service in the northern (lavender-shaded) area shown on Figure 1. DSRSD provides retail potable and recycled water service in the central (green-shaded) area shown on Figure 1. The City of Pleasanton's recycled water service area is in the southern (blue-shaded) area shown on Figure 1. The DERWA Board of Directors approved and certified a Program Environmental Impact Report (EIR) on the SRVRWP in December 1996.¹ The approved SRVRWP project is based on serving up to approximately 5.9 million gallons per day (MGD) of recycled water to urban retail water customers of EBMUD and DSRSD.

The SRVRWP Pump Station R3000 Project (Pump Station R3000 or Project) evaluated in this Initial Study/Mitigated Negative Declaration (IS/MND) is part of Phase 3 of the SRVRWP. The Project would be owned and operated by EBMUD and would allow the provision of recycled water to areas served only by EBMUD within the DERWA system through construction of a new pump station which was included in the SRVRWP Program EIR, and EBMUD was identified a Responsible Agency for the SRVRWP. This IS/MND was prepared because the Project location was changed following further site reviews. Pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15052(a)(2) and Section 15162(c), EBMUD is the Lead Agency for this IS/MND; no further approval action by the DERWA Board of Directors is necessary for Pump Station R3000 because the Project would be owned and operated by EBMUD individually.

¹ State Clearinghouse No. 96013028.



SOURCE: EBMUD, 2015

SRVRWP Pump Station R3000 . 160455

Figure 1
Existing and Future San Ramon Valley
Recycled Water Distribution System

1.2 Project Objectives

The objective of the Project is to enhance delivery of recycled water to the San Ramon, Danville and Blackhawk communities in the future to help meet EBMUD's long-range water supply needs, consistent with EBMUD's Water Supply Management Program 2040 (WSMP 2040) and Non-Potable Water Policy (Policy 9.05)². The WSMP 2040 is a program-level planning document that estimates EBMUD's water supply needs to 2040, and includes a diverse portfolio of policies and projects to ensure that those needs can be met in dry years. The WSMP 2040 identifies recycled water as a key component. The WSMP 2040 seeks to provide a total of 50 MGD of future water supply through increases in conservation and water recycling over the next 20 plus years. The recycled water offsets potable water use and reduces the need for severe rationing during droughts.

1.3 Environmental Setting

Pump Station R3000 would be located on one of two sites (referred to as Site A2 and Site A4, shown on Figure 2 and described further below in Section 1.4.1) in the City of San Ramon, Contra Costa County, California. Site A2 is located on property owned by the City of San Ramon adjacent to Dougherty Road and north of Gale Ridge Road (APN: 217-430-097). Site A4 is on DERWA-owned property about 300 feet northeast of Lilac Ridge Road (APN: 222-240-031). Pipelines associated with Site A2 would be within Dougherty Road, as shown on Figure 3. Pipelines associated with Site A4 would be within Lilac Ridge Road, N. Gale Road, and Dougherty Road, as shown on Figure 4.

Pump Station R3000 would deliver recycled water to the existing Reservoir R3000, serving portions of the San Ramon, Danville and Blackhawk communities in the future that are located north of the potential Project sites, as shown in Figure 1. The communities of San Ramon, Danville and Blackhawk consists of rolling, grass-covered open space hillsides interspersed with urbanized residential housing and commercial land uses with moderate to heavy vegetation in the developed areas. Site A2 occupies a landscaped area adjacent to Dougherty Road, approximately 2,000 feet south of Crow Canyon Road, with nearby residences located approximately 150 feet to the west and 300 feet to the east. Site A4 is located within open space, with nearby open space land and two residential subdivisions: Bridges at Gale Ranch, approximately 350 feet to the south of the site; and the Capella at Gale Ranch located at Laurels spur Loop, approximately 170 feet to the east of the site.

² EBMUD's Policy 9.05 requires that customers use non-potable water for nondomestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health and not injurious to plant life, fish and wildlife.

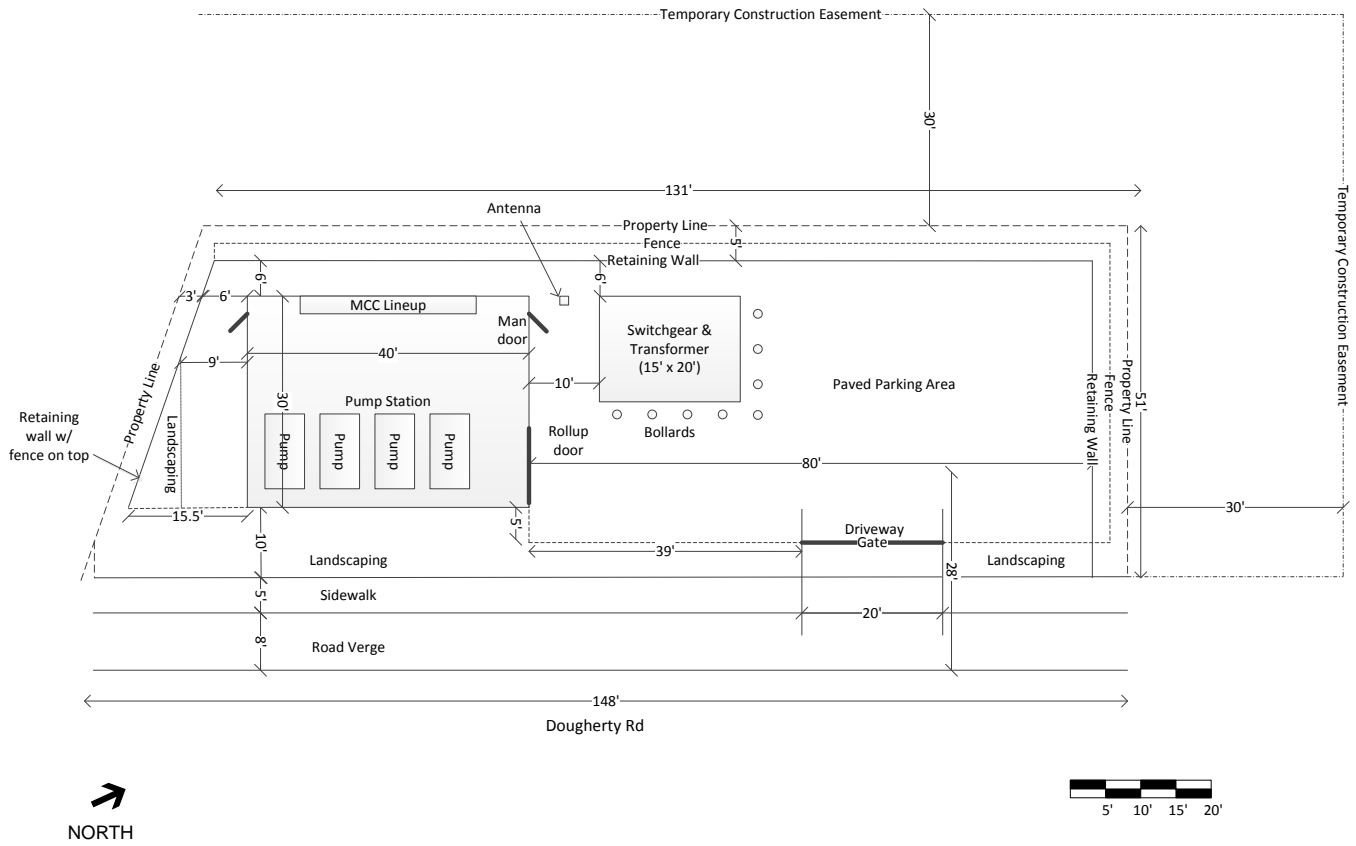


Note: Refer to Figures 3 and 4 for pipeline alignments.

SOURCE: Google Earth, 2017; ESA, 2017

SRVRWP Pump Station R3000 . 160455

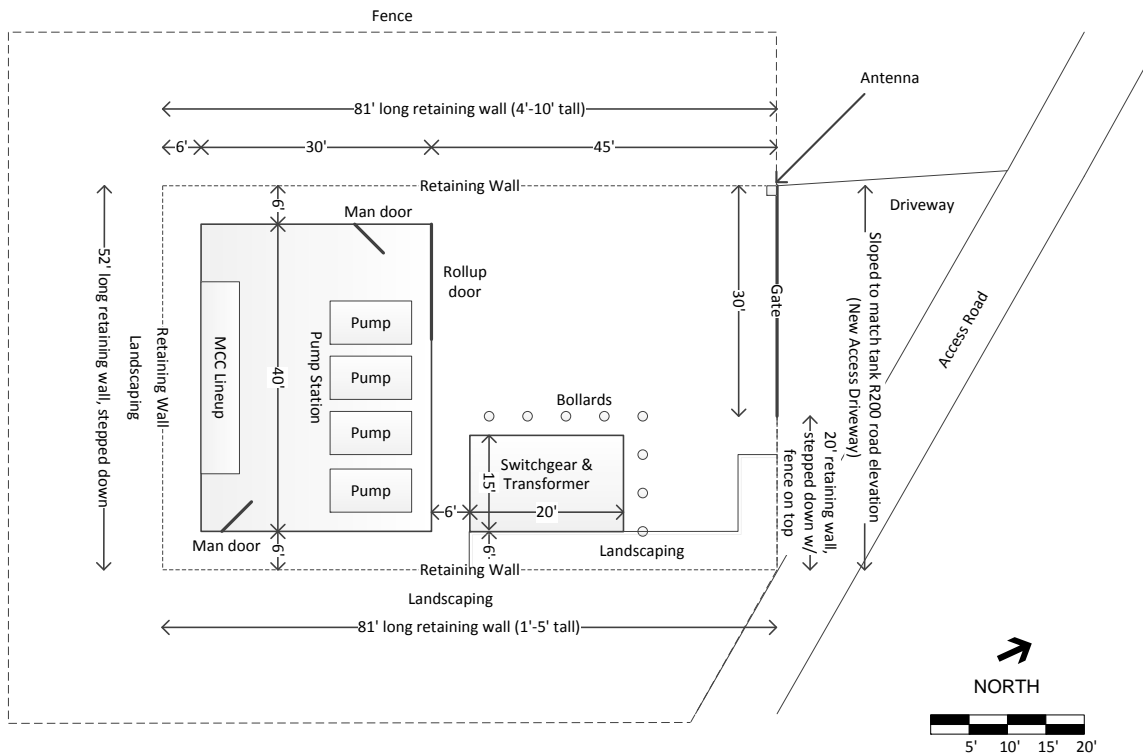
Figure 2
Potential Project Site and Construction Staging Area Locations



SOURCE: Google Earth, 2017; EBMUD, 2017; Adapted by ESA, 2017

SRVRWP Pump Station R3000 . 160455

Figure 3
Site A2 Location and Building Details



SOURCE: Google Earth, 2017; EBMUD, 2017; Adapted by ESA, 2017

SRVRWP Pump Station R3000 . 160455

Figure 4
Site A4 Location and Building Details

1.4 Project Description

1.4.1 Location

EBMUD has identified two candidate sites for Pump Station R3000, Site A2 and Site A4, both of which are shown on Figure 2 and described below:

- **Site A2** is located within the City of San Ramon east of Interstate 680 (I-680) on the west side of Dougherty Road between Crow Canyon Road and North Gale Ridge Road. The site is located at an elevation of approximately 570 feet. The property is currently owned by the City of San Ramon. The pump station site is described in more detail in Section 1.4.2 below. The pipelines associated with this site would be in Dougherty Road immediately east of Site A2 and are described in more detail in Section 1.4.3, below.
- **Site A4** is also located within the City of San Ramon and east of I-680. Site A4 is adjacent to the access road to EBMUD's recycled water tank Reservoir R200 (or Tank R200) (see Figure 2), located off of Lilac Ridge Road near Lantana Way. The site is at an elevation of approximately 675 feet. Site A4 is owned by DERWA. The pump station site is described in more detail in Section 1.4.2 below. Pipelines associated with Site A4 would be installed in the Reservoir R200 access road, Lilac Ridge Road, North Gale Ridge Road, and Dougherty Road and are described in more detail in Section 1.4.3, below.

1.4.2 Pump Station R3000

Pump Station Design

Pump Station R3000 would pump recycled water to Reservoir R3000, which serves areas north of the pump station (i.e., parts of the San Ramon, Danville and Blackhawk communities) above elevation 570 feet. The facility would consist of up to four 350 horsepower (hp) vertical turbine pumps with a combined capacity of approximately 5.6 MGD. The pump station would have a flow meter and surge provisions located within the pump structure. The pumps would be supplied recycled water from existing recycled water pipelines (at Site A2) and storage facilities (Reservoir R200 at Site A4) and discharge it into a recycled water transmission pipeline in Dougherty Road for service to higher elevations. The recycled water source is the DSRSD Wastewater Treatment Plant and Jeffrey G. Hansen Water Recycling Facility located in Pleasanton. The recycled water would be used for landscape irrigation by a variety of commercial customers.

The pump station design would incorporate noise reduction methods, including acoustical louvers in two building walls to reduce noise transmission while allowing air circulation. The pump station would use electricity supplied by PG&E through a 480 volt 300 kVA transformer. The distribution panel, switchgear and motor control center would be located outside of the pump station building, but within the boundary of the site. Facilities communication would use an approximately 30-foot tall radio antenna. The pump station building would be designed to match the architectural styles of surrounding subdivisions, including a beige colored building with a slanted, clay tiled roof.

Site A2

Site A2 occupies a landscaped area adjacent to Dougherty Road, a 50 mile-per-hour (MPH), six-lane roadway (Figure 3). The closest residences to Site A2 are located approximately 150 feet to the west and 300 feet to the east. Figure 3 shows the site dimensions and building plan for the pump station and transformer facilities at Site A2. The entire paved site would have a footprint of approximately 5,500 square feet and would include a pump station building, parking area and electrical transformer facilities. The pump station building would be approximately 1,200 square feet in area, partially buried, and approximately 21 feet high located at the southern end of the site. The pump station would be built into a hillside requiring retaining walls across the western and northern edges of the building and parking areas. A 30-foot wide construction easement along both the western and northern property lines would provide access during retaining wall construction. The property would be surrounded by eight-foot tall anti-climb and anti-cut wire mesh panel security fencing. Outdoor security lighting would be provided with motion detectors in addition to manual switches and timers. Lights would typically be used in the manual mode. Luminaire shields would be installed such that no light is directed off the site or into the sky. Runoff from Site A2 would drain into a new pipeline at the southeast corner of the site that would connect into an existing 36-inch stormwater pipeline north of the site that runs perpendicular to Dougherty Road.

Site A4

Site A4 is located within open space, as shown in Figure 4. Nearby existing land uses include open space and two residential subdivisions: Bridges at Gale Ranch, approximately 300 feet to the south of the site; and the Capella at Gale Ranch located at Laurelspur Loop, approximately 170 feet to the east of the site. Figure 4 shows the site dimensions and building plan for the pump station and transformer facilities at Site A4. The entire paved site would have a footprint of approximately 5,500 square feet and would include a pump station building, parking area and electrical transformer facilities. The pump station building would be approximately 1,200 square feet in area, partially buried, and approximately 21 feet high located at the southern end of the site. As shown in Figure 4, retaining walls would extend along most site boundaries except the driveway area on the eastern side. The property would be surrounded by eight-foot tall anti-climb and anti-cut wire mesh panel security fencing. Outdoor security lighting would be provided with motion detectors in addition to manual switches and timers. Lights would typically be used in the manual mode. Luminaire shields would be installed such that no light is directed off the site or into the sky. Runoff from Site A4 would drain into a new pipeline that would then connect into the existing storm drain system for Reservoir R200. An approximately 700 square foot triangular shaped access driveway would extend from the new site to the existing Reservoir R200 access road to allow for truck access onto the pump station site.

Landscape Design

Up to thirteen trees (Live Oak, Valley Oak, and Elm), ranging in size between four and eighteen inches' diameter at breast height (DBH), would be removed during pump station construction at Site A2, including two trees located within the temporary construction easement and one tree within the landscape strip between the curb and the sidewalk. No

tree removal would be needed for construction at Site A4, or for use of either Staging Area 1 or Staging Area 2.

Site A2

Site A2 occupies a landscaped area adjacent to Dougherty Road. Site A2 would include new landscaping in the unpaved area between the pump station and sidewalk, between the driveway and sidewalk, and construction easement area (Figure 3). Landscaping would include installation of approximately thirteen trees within the pump station landscape areas and the temporary construction easement, and would include a mix of: coast live oak (*Quercus agrifolia*), large evergreen shrub or small tree (*Photinia fraseri*), and large deciduous shrub or small tree (*Lagerstroemia indica* or Crape Myrtle), to match the existing tree landscaping along Dougherty Road. The landscaping may also include a mix of evergreen shrub (*Ligustrum japonicum* or Wax-leaf Privet) and compact evergreen shrub (*Escallonia* or Newport Dwarf) between the taller-growing *Photinias* or Crape Myrtles. The proposed landscaping is consistent with the City of San Ramon's Architectural Review Board (ARB) review comments.³ In addition, with the exception of the two trees to be removed within the construction easement at Site A2, the construction easement would be restored with shrubbery. All landscaping would be watered with recycled water.

Site A4

Site A4 is located within open space. Site A4 would include landscaping in the unpaved area between the parking lot and southern and eastern boundary of the Project site, and at the base of the lower retaining walls (Figure 4). Plants could include the following; large evergreen shrub or small tree (*Photinia fraseri*), large deciduous shrub or small tree (*Lagerstroemia indica* or Crape Myrtle), evergreen shrub (*Ligustrum japonicum* or Wax-leaf Privet), and compact evergreen shrub (*Escallonia* or Newport Dwarf). The landscaping may also include a mix of the lower-growing Privet or Escallonia shrubs between the taller-growing *Photinias* or Crape Myrtles. All landscaping would be watered with recycled water.

1.4.3 Pipelines

Figures 3 and 4 indicate the approximate locations of pipelines that would be associated with Pump Station R3000 at Site A2 or Site A4, respectively.

Site A2 Pipelines

The proposed supply and discharge pipelines associated with Site A2 would be between 12 to 16 inches in diameter and approximately 150 feet long. The pump supply pipeline and pump discharge pipeline at Site A2 would both connect to an existing recycled water pipeline immediately in front of the pump station in Dougherty Road, separated by a new isolation valve⁴, as shown in Figure 3.

³ Personal communication, City of San Ramon Architectural Review Board Meeting, August 9, 2018.

⁴ There would be two different recycled water pressure zones associated with the pipeline connections. A pressure zone is an area within a specific elevation range (e.g., 250 to 450 feet) where storage and distribution facilities are designed to deliver water at a pressure range suitable for customer use. The zones would be separated by a new isolation valve that would be installed during pipeline construction.

Site A4 Pipelines

The proposed supply and discharge pipelines associated with Site A4 would be between 12 to 16 inches in diameter. The supply pipeline for Site A4 would connect to the inlet-outlet pipeline for Reservoir R200, located within the tank's access road adjacent to the pump station site (Figure 4). The discharge pipeline would be about 1-mile-long, extending between the pump station and Dougherty Road via Lilac Ridge Road and North Gale Ridge Road (see Figure 4). The discharge pipeline would connect to an existing recycled water pipeline 0.5 miles north of the intersection of Dougherty Road with North Gale Ridge and North Monarch Roads, downstream from a new isolation valve⁵.

1.5 Construction Methods and Schedule

1.5.1 Pump Station Construction

Table 1 identifies specific activities that would occur and the estimated duration of each construction phase. Note that overall, pump station construction would occur during a period of approximately 24 months. Construction phases would include mobilization, excavation/site work, pump station construction, backfill, landscaping/site restoration, and demobilization. The maximum depth of excavation for building construction is approximately 18 feet. The pump station foundation would be slab-on-grade; no pile driving is anticipated. The retaining walls would be constructed with drilled and poured concrete piers. Table 2 shows the equipment expected to be used during each construction phase.

Trucks and other construction equipment would access the sites via the nearest roadways, including Dougherty Road for Site A2 and Lilac Ridge Road and North Gale Ridge Road for Site A4. There would be a maximum of ten one-way worker vehicle trips per day (five commute trips in the morning and five commute trips in the afternoon) and eight one-way truck trips per hour (assuming an eight-hour work day, this equals 64 truck trips per day) to either pump station construction site. The total estimated one-way worker vehicle trip and truck trips combined would be 74 trips per day.

The construction sites would be secured with temporary eight-foot-high chain link fencing. Temporary lighting may be installed for security purposes.

Pump Station Construction Hours

Pump station construction would primarily occur Monday through Friday between 7:30 am to 7:00 pm on weekdays and between 9:00 am to 6:00 pm on weekends as needed for required outages⁶ and/or emergencies. Per EBMUD Standard Construction Specification 01 14 00, Work Restrictions, the work hours for haul trucks would be limited to between 9:00 am and 4:00 pm to prohibit haul truck traffic during commute hours. Section 1.5.2 presents proposed hours for pipeline construction.

⁵ Ibid.

⁶ Outages refer to periods when the EBMUD takes the recycled water system out of service. For Pump Station R3000, outages could occur during pipeline connections and would not be expected to last more than one day.

**TABLE 1
PUMP STATION CONSTRUCTION PHASES AND ACTIVITIES**

Construction Phase	Construction Activity	Approximate Duration (months)^a
Mobilization	<ul style="list-style-type: none"> • Commence pump station construction • Setup offices • Initial site survey • Mobilize equipment 	3
Excavation/Site Work	<ul style="list-style-type: none"> • Remove Trees and stumps • Clear and grub • Install and maintain Storm Water Pollution Prevention Plan (SWPPP) features • Excavate and Grade Pump Station and Transformer Pad, • Concrete retaining wall • Drive up ramps 	3
Pump Station Construction (Concrete Work)	<ul style="list-style-type: none"> • Construct pump station foundation and structure (e.g., walls, roof slab, etc.) • Construct transformer pad 	8
Pump Station Construction	<ul style="list-style-type: none"> • Roof construction • Mechanical and electrical work • Architectural elements • Pipeline construction • Backfill pump station 	4
Landscaping/Site Restoration	<ul style="list-style-type: none"> • Re-vegetation and planting • Pave access and parking area • Fence installation 	3
Demobilization	<ul style="list-style-type: none"> • Final site cleanup • Testing and startup • Conclude pump station construction 	3

^a Duration of construction phases do not reflect down time and are not additive. Overall, pump station construction is expected to take 24 months.

Site A2 Earthwork, Haul Trips, and Construction Staging

The total volume of soil that would be hauled during excavation at Site A2 is approximately 200 cubic yards. The soil would be hauled away in approximately 23 truck trips, with nine to 16 cubic yards of soil being hauled per trip. The site is currently occupied by a low to moderate density of native and non-native trees and shrubs. Up to thirteen trees would be removed during pump station construction, including two trees located within the temporary construction easement, and one tree located in the median between the sidewalk and road, to accommodate the new driveway. The Project would replace the two trees removed within the temporary construction easement and the rest would be replaced in the unpaved area between the pump station and sidewalk, and between the driveway and sidewalk. Staging would occur for approximately 24 months.

TABLE 2
PUMP STATION CONSTRUCTION EQUIPMENT

Construction Phase	Equipment	Number of Equipment
Mobilization	Haul Truck	2
	Backhoe	1
Excavation/Site Work	Crane (small)	1
	Excavator	1
	Front End Loader	2
	Backhoe	2
	Haul Trucks	6
	Drill Rig	1
	Chain Saws	2
	Pump Station Construction (Concrete Work)	Backhoe
	Drill	2
	Concrete and Shotcrete Trucks	2
	Concrete Pump	2
	Forklift	1
	Boom Truck	1
Pump Station Construction	Crane	1
	Drill Rig	1
	Backhoe	1
	Welding Equipment	1
	Forklift	1
	Boom Truck	1
Backfill	Excavator	1
	Front End Loader	1
	Scraper	1
	Compactor	1
	Haul Trucks	6
Landscaping/Site Restoration	Backhoe	1
	Soil Compactor	3
	Haul Trucks	3
	Asphalt Pavers	2
	Rollers	2
Demobilization	Backhoe	1
	Haul Truck	1

SOURCE: EBMUD, RFI Response to ESA, September 2, 2016.

There are two potential staging areas for Site A2:

- **Staging Area 1.** The first potential staging area is 5077 Crow Canyon Road, adjacent to the Acorn Learning Center, a dirt area staging (open space, not in a conservation area) owned by the City of San Ramon and used on past projects for construction. Staging Area 1 is located less than one mile northwest of Site A2 and is shown on Figure 2.
- **Staging Area 2.** The second potential staging area is the paved area approximately 170 feet north of Reservoir R200 (Staging Area 2 on Figure 2) and is located about one mile by road southwest of Site A2.

In addition, approximately 100 feet of Dougherty Road (the westernmost, southbound travel lane) adjacent to Site A2 would be closed daily during non-commute hours for pump station facilities construction to accommodate pump station excavation and concrete pumping.

Site A4 Earthwork, Haul Trips, and Construction Staging

The total volume of soil that would be hauled during excavation at Site A4 is approximately 1,040 cubic yards. The soil would be hauled away in approximately 115 truck trips, with nine to 16 cubic yards of soil hauled per trip. Construction at Site A4 would be staged on a paved area approximately 170 feet north of Reservoir R200 (Staging Area 2 on Figure 2). This site has an existing access road. Staging would occur for approximately 24 months.

1.5.2 Pipeline Construction

The pipelines would be constructed using the open-trench (or “cut and cover”) construction technique. Open trench construction involves saw cutting the pavement, excavating a trench, removing the soil, installing the pipeline, backfilling the trench, installing temporary asphalt over the backfilled trench, and then installing permanent paving using a T-cut repair. A T-cut repair involves replacing the roadway to one foot beyond the edge of the trench. Where the edge of the trench is within two feet of a gutter lip or the edge of pavement, the pavement between the trench cut and the gutter lip or edge of pavement would be removed and replaced. The contractor could typically install between 80 lineal feet (LF) and 200 LF of pipeline per workday in paved areas. One paving crew could typically pave 700 LF of trench with six-inch asphalt concrete paving per day.

The pipeline tie-ins (i.e., connections to existing pipelines) would require the excavation of a trench or pit at each location. Temporary shoring would be required to ensure the stability of the excavation. Shoring may include the use of vibratory or impact driven sheet piles. The proposed tie-ins would be located within street rights-of-way and sited to minimize disruptions to traffic and homeowner access. Table 3 identifies specific activities that would occur and the estimated duration of each construction phase for pipeline installation. Note that overall, pipeline construction would occur during a period of approximately four months.

**TABLE 3
PIPELINE CONSTRUCTION PHASES AND ACTIVITIES**

Construction Phase	Construction Activity	Approximate Duration (months)^a
Mobilization	<ul style="list-style-type: none"> • Layout • Excavate 	1
Install pipe	<ul style="list-style-type: none"> • Install pipe, Steel pipe welding for offsets • Tie-in • Pressure test • Flush & chlorinate 	1
Landscaping/Site Restoration	<ul style="list-style-type: none"> • Pavement restoration • Median restoration 	1
Demobilization	<ul style="list-style-type: none"> • Conclude pipeline construction 	1

^a Duration of construction phases do not reflect down time and are not additive. Overall, pipeline construction is expected to take four months.

Table 4 shows the equipment expected to be used during each construction phase for pipeline installation.

Pipeline Construction Hours

Pipeline construction would occur primarily Monday through Friday from 7:30 am to 7:00 pm and between 9:00 am to 6:00 pm on weekends as needed for required outages⁷ and/or emergencies. Pipeline construction at Site A2 could occur outside of normal work hours or during night hours when authorized or requested by the City of San Ramon, in order to minimize traffic disruption in the southbound lanes of Dougherty Road. In addition, EBMUD Standard Construction Specification 01 14 00, Work Restrictions, limits the work hours for haul trucks to between 9:00 am and 4:00 pm to prohibit haul truck traffic during commute hours. There would be no pipeline construction activity for the pipeline associated with Site A4 on North Gale Ridge Road during the normal school year for Coyote Creek Elementary School.

Site A2 Pipelines

As shown in Figure 3, the supply and discharge pipelines would be installed beneath the southbound travel lanes of Dougherty Road. The pipeline trench would typically be about five feet wide and between five and eight feet deep. A minimum construction corridor width of 10 feet would be needed to accommodate pipeline storage and to allow trucks and equipment access along the trench. In some areas where the pipeline would need to be installed at greater depth to avoid other utilities, a wider trench and construction easement of up to 15 feet may be required. Other construction activities, such as the installation of pipeline connections, could also require larger excavations. The pipeline would be installed in sections and would require temporary lane closures in Dougherty Road. One to two lanes

⁷ Outages refer to periods when the EBMUD takes the reclaimed water system out of service. For the R3000 Project, outages could occur during pipeline connections and would not be expected to last more than one day.

**TABLE 4
PIPELINE CONSTRUCTION EQUIPMENT**

Construction Phase	Equipment	Number of Equipment
Pipeline Construction	Services Truck	1
	Supervisor Pickup Truck	1
	Crew pickup truck	1
	Water Truck	1
	Transfer truck with trailer	1
	Saw Cutting Machine & Truck	1 each
	Pickup truck	1
	Hydro Pressure test pump	1
	Baker Tanks	2
	Backhoe with 4&1 Bucket / Carry Deck	1 each
	Welding Equipment with Pickup truck	1
	Vibra Plate	1
	Hydro Vac Truck	1
	Option Backhoe with Hydro Hammer	1
	Large Hydro Vibra Plate for Class 1 Backfill	1
	Boom Truck	1
Backfill	Services Truck	1
	Pickup Truck	2
	Excavator	1
	Front End Loader	1
	Skid Steer	1
	Compactor Rammex	1
	Haul Trucks	3
	Landscaping/Site Restoration	Services Truck
Pickup Truck		1
Backhoe		1
Soil Compactor		1
Haul Trucks		2
Asphalt Pavers		1
Rollers		1
Demobilization	Services Truck	1
	Pickup Truck	1
	Backhoe	1
	Haul Truck	1

are expected to be closed during non-commute hours on the southbound side of Dougherty Road during pipeline construction, with traffic being funneled into the remaining available lane(s). Traffic control measures (e.g., signage, flaggers) would be implemented in order to route traffic around the construction area.

Pipeline construction for Site A2 would occur in concurrence with the pump station construction described above; therefore, the haul trucks and trips per day are included as part of the total estimate for the Site A2 pump station construction.

Site A4 Pipelines

As shown in Figure 4, the supply pipeline would be installed in the Reservoir R200 access road, and the discharge pipeline would be installed in the Reservoir R200 access road, Lilac Ridge Road, and North Gale Ridge Road, turning north on Dougherty Road and connecting to the existing recycled water pipeline in Dougherty Road. The trench typically would be up to three feet wide and seven feet deep, to account for existing buried pipelines. A minimum construction corridor width of 10 feet would be needed to accommodate pipeline storage and to allow trucks and equipment access along the trench. In some areas where the pipeline would need to be installed at greater depth to avoid other utilities, a wider trench and construction easement of up to 15 feet would be required. Other construction activities, such as the installation of pipeline connections, could also require larger excavations. One lane of Lilac Ridge Road and North Gale Ridge Road is anticipated to be closed during pipeline construction and connection. One-way traffic control around the construction site would be implemented in order to reduce traffic road congestion. It is expected that one or two lanes would be closed during non-commute hours on either the southbound or northbound side of Dougherty Road during pipeline construction (from Site A4 to the recycled water transmission main in Dougherty Road), with traffic being funneled into the remaining available lane(s). Traffic control measures (e.g., signage, flaggers) would be implemented in order to route traffic around the construction area.

Pipeline construction at Site A4 would require approximately 14 haul trucks per day for trench pavement, soil disposal, and fill import deliveries. The haul trucks average nine to 16 cubic yards per load. Four materials trucks would be used per day for deliveries of pipeline, appurtenance, paving, and other equipment delivery. There would be approximately thirteen worker trips per day for pipeline construction at Site A4.

1.5.3 Schedule

EBMUD would decide whether to implement Site A2 or Site A4 based primarily on whether a property transfer agreement can be negotiated with the City of San Ramon regarding Site A2. Pump station and pipeline construction may occur simultaneously, except during pump station concrete work. For purposes of analysis, pump station construction is anticipated to take approximately 24 months and would occur anytime between 2020 and 2024, and pipeline construction is anticipated to take approximately four months within this same time frame.

1.6 EBMUD Practices and Procedures

EBMUD has incorporated a number of standard construction specifications, standard practices from EBMUD's Environmental Compliance Manual, and Engineering Standard Practices into the Project. These standard specifications and standard practices are designed to address typical characteristics of EBMUD construction projects and are not project-specific or tailored to the unique characteristics of the Project. These standard specifications and standard practices, which are applicable to all EBMUD projects and reflect generally applicable EBMUD standard operating procedures, are described in more detail below.

EBMUD maintains several Standard Construction Specification documents specifically related to environmental conditions, including:

- **00 31 21.13, Site Survey Information** – This section requires the Contractor to provide documentation of both pre- and post-construction pavement conditions in the project vicinity and includes provisions for long-term transportation safety.
- **01 14 10, Work Restrictions** – This section describes special requirements and construction constraints (including work hours) that may affect Project construction.
- **01 35 24, Project Safety Requirements** – This section includes provisions for the safety of the public and construction workers regarding hazards and hazardous materials.
- **01 35 44, Environmental Requirements** – This section includes provisions related to water quality, dust and emissions control, noise and vibration control, hazardous materials control, and protection of biological and cultural resources.
- **01 55 26, Traffic Regulation** – This section includes provisions for the regulation of traffic during construction and compliance with applicable traffic regulations requirements.

Section 3.0, Water Quality Protection, and Section 9.0, Trench Spoils Field Management Practices, of EBMUD's Environmental Compliance Manual include best management practices (BMPs) that have been incorporated into the Project including provisions regarding liquid discharges and trench spoils management.

EBMUD Procedure 711, Hazardous Waste Removal, defines hazardous waste and establishes responsibilities for removal of hazardous wastes from EBMUD facilities. This procedure outlines specific steps and responsibilities for: characterizing the waste and determining what analyses are needed to classify the waste; coordinating waste disposal, reuse, or recycling issues; labeling, storing, inspecting, and maintaining inventory records for the waste; and reviewing, signing, and tracking any hazardous waste handling and disposal requirements and hazardous waste manifests.

EBMUD's Engineering Standard Practice 512.1, Water Main and Services Design Criteria, and Engineering Standard Practice 550.1, Seismic Design Requirements, dictate

basic requirements for water pipelines and design standards for pipelines to withstand seismic hazards.

EBMUD's Pumping Plant Design Guide establishes minimum requirements to be followed in the design of EBMUD pumping plants.

Appendix A contains the EBMUD Practices and Procedures Monitoring and Reporting Plan. This table and discussion in the Initial Study detail these practices and procedures and describe their relationship to Project impacts.

1.7 Operation and Maintenance

EBMUD would own and operate Pump Station R3000. The pump station would generally be operated remotely via the EBMUD's Supervisory Control and Data Acquisition (SCADA) system. The operating hours of the pump station would vary. In general, EBMUD tries to operate pump stations during off-peak hours (e.g., nighttime and morning hours) when electricity demand and cost are lower. One worker vehicle trip per week is anticipated for pump station operation and maintenance.

1.8 Approvals Required

In addition to EBMUD approval of the Project, the following approvals may be required for Project implementation:

- City of San Ramon
 - Sale of Pump Station Site A2
 - Encroachment Permit for pipeline construction within City roadways and (for Site A2) use of a segment of Dougherty Road during construction for vehicle access and staging.

1.9 References

DERWA, *Draft Environmental Impact Report for the San Ramon Valley Recycled Water Program*, State Clearinghouse No. 96013028, August 1996.

East Bay Municipal Utility District (EBMUD), Engineering Standard Practice, ESP 512.1, Water Main and Services Design Criteria, effective October 9, 2006.

EBMUD, Engineering Standard Practice, ESP 550.1, Seismic Design Requirements, effective November 2, 2001.

EBMUD, Environmental Compliance Manual, 2010 Edition, Section 3.0, Water Quality Protection, effective October 2010.

EBMUD, Environmental Compliance Manual, 2010 Edition, Section 9.0, Trench Spoils Field Management Practices, effective October 2010.

EBMUD, Pumping Plant Design Guide, October 14, 2014.

EBMUD, Standard Construction Specification, Section 00 31 21.13, Site Survey Information, April 21, 2017.

EBMUD, Standard Construction Specification, Section 01 14 00, Work Restrictions, May 3, 2017.

EBMUD, Standard Construction Specification, Section 01 35 24, Project Safety Requirements, November 23, 2017.

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

EBMUD, Standard Construction Specification, Section 01 55 26, Traffic Regulation, February 9, 2017.

EBMUD, Mandatory Use Policy, Non-Potable Water, Policy 9.05, September 22, 2105. Accessed on August 4, 2016.

EBMUD, *Water Supply Management Program 2040 Plan*, April 2012. Available online at <https://www.ebmud.com/about-us/construction-my-neighborhood/water-supply-management-program-2040>. Accessed on August 4, 2016.

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SECTION 2.0

Initial Study Environmental Checklist

- 1. Project Title:** San Ramon Valley Recycled Water Program Pump Station R3000 Project
- 2. Lead Agency Name and Address:** East Bay Municipal Utility District (EBMUD)
Water Supply Improvements Division –
Mail Slot 407
375 Eleventh Street
Oakland, CA 94607
- 3. Contact Person and Phone Number:** Reena Thomas, EBMUD Project Manager
510-287-0593
- 4. Project Location:** New pump station to be located on one of two sites (referred to as Site A2 and Site A4 and shown on Figure 2) and associated pipelines located in the City of San Ramon, Contra Costa County, CA. Site A2 is located on property owned by the City of San Ramon adjacent to Dougherty Road and north of Gale Ridge Road (APN: 217-430-097). Site A4 is on DERWA-owned property about 300 feet northeast of Lilac Ridge Road (APN: 222-240-031).

Pipelines associated with Site A2 would be within Dougherty Road. Pipelines associated with Site A4 would be within Lilac Ridge Road, N. Gale Road, and Dougherty Road.

Two construction staging areas in the vicinity of the sites are under consideration (refer to Figure 2).
- 5. Project Sponsor's Name and Address:** East Bay Municipal Utility District
Water Supply Improvements Division –
Mail Slot 407
375 Eleventh Street
Oakland, CA 94607

- 6. General Plan Designation(s):** Multi-Family High Density Residential (Site A2); Open Space for Natural State and Passive Recreation (Site A4)
- 7. Zoning:** Medium Density Residential (Site A2); Open Space (Site A4)
- 8. Description of Project:** A new recycled water pump station (Pump Station R3000) with a capacity of about 5.6 million gallons per day, plus pipelines (shown on Figures 3 and 4) to connect the pump station to an existing transmission main in Dougherty Road. Please see Chapter 1 for details.
- 9. Surrounding Land Uses and Setting:** Open Space; Parks and Recreation; Residential
- 10. Other public agencies whose approval is required:** City of San Ramon – Encroachment Permit; sale of Site A2 (if that site is selected)

2.1 Environmental Factors Potentially Affected

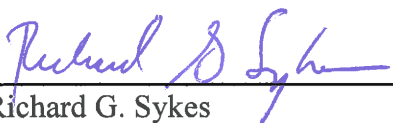
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Tribal Cultural Resources | <input type="checkbox"/> Utilities/Service Systems |
| <input checked="" type="checkbox"/> Mandatory Findings of Significance | | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



 Richard G. Sykes
 Director of Water and Natural Resources

10-2-19

 Date

Introduction to the Analysis: This section includes analyses for both Site A2 and Site A4. Where the analyses differ, Site A2 and Site A4 are discussed separately. This section also describes the existing environmental conditions on and near the Project sites, as relevant to the analyses.

2.2 Environmental Checklist

2.2.1 Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Site A2

Site A2 is within a landscaped portion of the Miravilla at Gale Ranch subdivision. There are currently trees and shrubs on the site. The site abuts southbound Dougherty Road and is at elevation 570 feet. Site topography directly adjacent to the sidewalk and roadway is flat, while the western portion of the site occupies an east-facing slope. The site is most visible from the southbound travel lanes of Dougherty Road as well as adjacent sidewalks (see Photo 1 of Figure 5). In general, the hillslope west of Dougherty Road south of Red Willow Road is landscaped with a natural appearance largely lacking manmade structures. The elevation of the hillslope decreases as southbound drivers and pedestrians approach Site A2. Beginning roughly 100 feet north of Site A2 there are street trees between the sidewalk and roadway which, coupled with the landscaped median, constrains views of Site A2 from northbound drivers and pedestrians. Site A2 is minimally visible from a number of single family residences on the east side on the road. The site is not visible from publicly accessible roadways to the west. Views of the site from homes along Ivy Pointe Circle upslope of the site are likely largely obscured by intervening vegetation. The site is not visible from any state scenic highways or other scenic resources.



Photo 1- Site A2 as seen driving southbound on Dougherty Road.



Photo 2- Site A4 as seen driving northwest on Lilac Ridge Road.

SOURCE: Google Earth, 2015; ESA

SRVRWP Pump Station R3000 . 160455

Figure 5
Site Views from Public Locations

Site A4

Site A4 is located adjacent to Bridges at Gale Ranch and Capella at Gale Ranch subdivisions and is approximately one-half mile north of Bollinger Canyon Road, 1,500 feet west of Dougherty Road, and 2,500 feet southwest of Crow Canyon Road. The site is at elevation 680 feet and occurs within a topographic bowl on the south-southeastern facing slope of a ridgeline that extends to 800 feet.

Site A4 is within property owned by DERWA that contains underground below grade recycled water reservoir (Reservoir R200) and access road. The pump station would be constructed adjacent to the access road. The visual attributes of the site vicinity are rolling, grass-covered hillsides on the outskirts of urbanized, residential areas. Vegetation at the site consists of grasses and shrubs. The pump station site is visible from parts of Lilac Ridge Road (see Photo 2 of Figure 5) and Lantana Way, and slightly visible from the corner of Sky Jasmine Way and Laurelspur Loop. Although the site can be seen from portions of West Alamo Creek Trail, it is mostly obscured by intervening topography and vegetation. There are no scenic highways or other scenic resources nearby or adjacent to Site A4.

- a) For purposes of analysis, a scenic vista is defined as a distant view encompassing valued natural or built landscape features such as ridgelines, water bodies or landmark features.

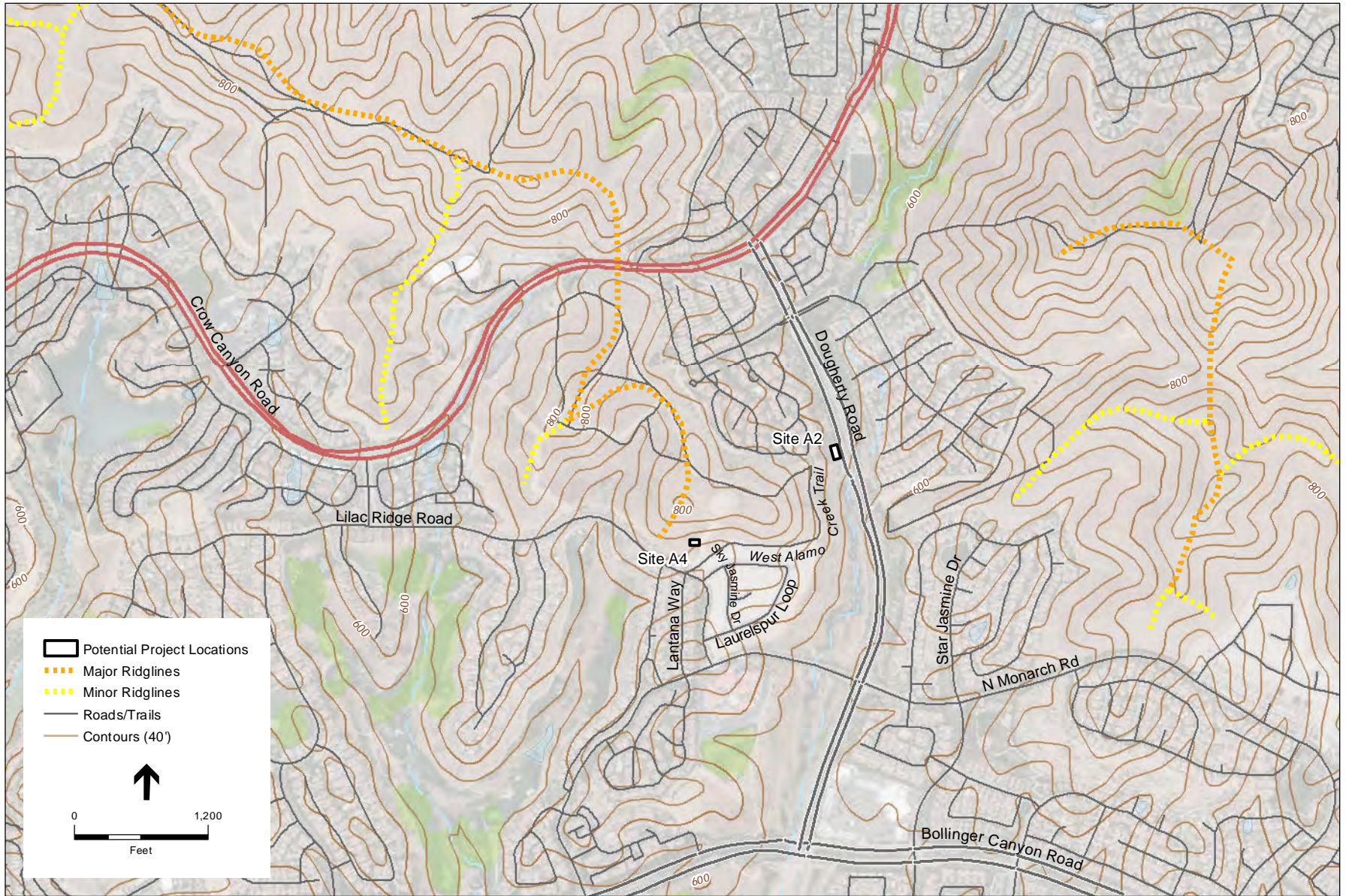
Site A2

Site A2 is located on the west side of Dougherty Road between Crow Canyon Road and North Gale Ridge Road. The site is at 570 feet elevation and is on property that is currently owned by the City of San Ramon. Although Site A2 is visible from Dougherty Road, construction and operation of the pump station at Site A2 would not have a substantial adverse effect on a scenic vista because the site is not part of a scenic vista. **(No Impact)**

Site A4

As shown in Figure 6, Site A4 lies south and west of the southern terminus of a Major Ridgeline as identified in the San Ramon General Plan 2035 (General Plan - San Ramon, 2015). As noted above, the ridgeline extends to 800 feet elevation. The General Plan requires a 100-foot vertical setback from major ridgelines within the City. For purposes of this evaluation, views of this ridgeline are treated as a scenic vista.

The structure housing the pumps would be about 21 feet high to the top of the roof; thus, the pump station would be approximately 100 vertical feet below the ridgeline. While the ridgeline itself is visible in views from segments of Dougherty and Crow Canyon Roads and neighboring land uses, Site A4 is not visible from these roadways because of its elevation relative to intervening topography and vegetation, its location and orientation, and its size (see Photo 2 of Figure 5). The ridgeline is visible from Lilac Ridge Road near Lantana Way, and from homes at higher elevation on Sky Jasmine Drive, northeast of the intersection of Dougherty Road and North Monarch Road.



SOURCE: USDA, 2014, USGS, 2016; City of San Ramon; 2015; ESA, 2016

SRVRWP Pump Station R3000 . 160455

Figure 6
City of San Ramon Designated Major and Minor Ridgelines

While the pump station would be visible from Lilac Ridge Road and from homes at higher elevation on Sky Jasmine Drive, because of its location, elevation, and scale, the pump station would not obstruct views of the ridgeline. Consequently, development and operation of the pump station at Site A4 would not have a substantial adverse effect on a scenic vista. **(Less than Significant)**

- b) The trees and other landscaping on the hill slope west of Dougherty Road south of Red Willow Road could be considered a scenic resource to pedestrians and drivers passing the sites and to which vegetation at the Project sites incrementally contributes (see Photo 1 of Figure 5).

Site A2

Construction of Pump Station R3000 at Site A2 would require the removal of up to thirteen trees, including one tree located in the median between the sidewalk and Dougherty Road, as well as shrubs within the site boundary. Tree removal at Site A2 to accommodate the pump station would incrementally diminish trees as a scenic resource at the site; however, any remaining trees on site and within the construction easement would be protected and preserved to the extent possible as part of the Project. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.7, Protection of Native and Non-Native Protected Trees, of this specification includes best practices for protecting trees that are not to be removed within the Project construction limits, including: 1) Showing the location of trees to be removed and protected on construction drawings; 2) Pruning in accordance with the Tree Pruning Guidelines of the International Society of Arboriculture; 3) Installation of exclusion fencing outside of the drip lines of trees to be protected; 4) Excluding work or storage inside of the tree protection zone; and 5) Conducting pruning or tree replacement to the satisfaction of a certified arborist provided by EBMUD. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language.

Through compliance with the EBMUD Standard Construction Specification 3.7, Protection of Native and Non-native Protected Trees the Project would implement best practices for tree protection. As described in Section 1.4.2 of Section 1.0, Project Description, EBMUD would also landscape the frontage of Site A2 following construction. The landscaping would buffer views of the pump station for motorists and pedestrians passing the site. Because Section 3.7, Protection of Native and Non-Native Protected Trees, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes provisions for tree protection, and because landscaping has been incorporated into the Project, which would buffer views, Project construction and operational impacts related to effects on a scenic resource are less than significant. **(Less than Significant)**

Site A4

Construction of Pump Station R3000 at Site A4 would not require the removal of any trees, nor substantially damage scenic resources visible from a state scenic highway because there are no trees on the site, and the site is not visible from a state scenic highway. Because the Project would not remove trees from Site A4, and it is not visible from a scenic highway, there would be no impact from the Project on a scenic resource at Site A4. **(No Impact)**

c) **Site A2 and Site A4**

Pump Station R3000 at either of the site locations would change the existing visual character of the sites. Site A2 is currently occupied by trees and shrubs. Site A4 is on a hillside that is currently occupied by grasses and shrubs. Neighboring uses include the access road and manmade features (fencing, stairs, etc.) associated with Reservoir R200 at Site A4. The vegetation would be replaced by a building, electrical equipment, and a paved parking area. The transition from natural to manmade elements occupying the sites would be softened with landscaping to be installed along portions of the perimeter of the pump station, as described in Section 1.4.2 of Section 1.0, Project Description. Because landscaping has been incorporated into the Project, the Project impacts related to the visual character of the site are less than significant. **(Less than Significant)**

Construction activities (excavation, grading, haul road, open trenches, machinery and vehicle storage) would have a temporary effect on the visual quality at both of the potential pump station sites and along the pipeline alignments during construction. Due to the limited duration of construction activities, potential visual impacts due to construction activities would be temporary and less than significant. **(Less than Significant)**

d) **Site A2 and Site A4**

The pump station at either site would have motion detected security lighting once it is in operation. Periodically, this lighting may be on consistently, in non-motion detect mode, if evening maintenance is required. Infrequent use and uses in short duration of the security lighting would ensure that the lighting is not a substantial new source of light in the area. The lighting would also include luminaire shields to ensure that no light is directed off the Project site or into the sky.

Although it is not expected, nighttime construction may be a temporary new light source if pipeline connection and construction is necessary during nighttime hours. Should construction need to occur at night, lighting would be used to illuminate the construction area. The construction lighting may be visible to adjacent residences and along public roadways. Although the use of construction lighting at night would be temporary, the impact from night lighting on nighttime views could be potentially significant. **Mitigation Measure AES-1: Shield Night Lighting** requires the shielding of night lighting to be directed downward or oriented such that the light source is not directed toward residential areas or into streets. By directing the light source away from residential areas and streets, the

nighttime lighting would be kept contained on the Project site, reducing the potential to create a new source of light or glare that would adversely affect nighttime views in the area.

Mitigation Measure AES-1: Shield Night Lighting.

Stationary lighting used during nighttime construction (if required) shall be shielded and directed downward or oriented such that the light source is not directed toward residential areas or into streets.

With implementation of Mitigation Measure AES-1, which requires the shielding of night lighting, the Project would not create a new source of substantial light that would adversely affect views and impacts would be less than significant. **(Less than Significant with Mitigation)**

References

The City of San Ramon, *San Ramon General Plan 2035*, Open Space Element, adopted by the City Council April 28 2015. Available online at <http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm>. Accessed on August 15, 2016.

California Department of Transportation (Caltrans), California Scenic Highway Mapping System – Contra Costa County. Updated September 07, 2011. Available online at http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm.

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

San Ramon, California, *Municipal Code Section C6-46*.

2.2.2 Agricultural and Forest Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
2. AGRICULTURAL AND FOREST RESOURCES —				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) **Site A2 and Site A4**

Neither Site A2 nor Site A4 is on land that is designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance according to the California Department of Conservation (CDC) Contra Costa County Important Farmland map. Site A2 is on built and planned urban land. Site A4 is on grazing land, land that is composed of vegetation that is suited to the grazing of livestock, but is not currently grazed. Therefore, implementation of the Project would not have a substantial adverse effect on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. **(No Impact)**

b) **Site A2 and Site A4**

A Williamson Act contract allows local governments to enter contracts with private landowners in order to restrict specific parcels of land for the use of open space or agricultural. Neither Site A2 nor Site A4 is on land that is restricted under a Williamson Act contract (California Department of Conservation, 2013). Therefore, implementation of the Project would not have a substantial adverse effect. **(No Impact)**

c) **Site A2 and Site A4**

Site A2 is designated as Multi-Family High Density Residential by the San Ramon Zoning Ordinance. To the east, Site A2 is bordered by Dougherty Road, a 50 MPH roadway with three lanes in each direction. Site A4 is designated as Open Space by the San Ramon Zoning Ordinance. Site A4 consists of grassland and an access road that leads to an EBMUD recycled water tank (Reservoir R200). There are single family residences to the east and south of Site A4. Neither Site A2 nor A4 conflicts with existing zoning for, or would cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. Therefore, implementation of the Project would not have a substantial adverse effect. **(No Impact)**

d) **Site A2 and Site A4**

The construction of Pump Station R3000 at either of the proposed sites would not result in the loss of forest land or conversion of forest land to non-forest use (refer to discussions under item 2a, above). Therefore, implementation of the Project would not have a substantial adverse effect. **(No Impact)**

e) **Site A2 and Site A4**

Pump Station R3000 would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agriculture use or conversion of forest land to non-forest use (refer to discussions under items 2a and 2b, above). Therefore, implementation of the Project would not have a substantial adverse effect. **(No Impact)**

References

California Department of Conservation, Division of Land Resource Protection, *Contra Costa County Williamson Act FY 2012/2013*, 2013.

California Department of Conservation, Division of Land Resource Protection, *Contra Costa County Important Farmland Map 2014*, Published April 2016.

The City of San Ramon, *San Ramon General Plan 2035*, Open Space Element, adopted by the City Council April 28 2015. Available online at <http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm>. Accessed on July 27, 2016.

The City of San Ramon, *San Ramon Zoning Map*, August 13, 2015.

2.2.3 Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
3. AIR QUALITY —				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors ⁸ to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a) Setting

Sites A2 and A4 are within the San Francisco Bay Area Air Basin (Bay Area Basin). Under amendments to the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has classified air basins or portions thereof as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the national standards have been achieved. The California CAA, which is patterned after the federal CAA, also requires areas to be designated as “attainment” or “non-attainment” for the state standards. Thus, areas in California have two sets of attainment / non-attainment designations: one set with respect to the national standards and one set with respect to the state standards. The Bay Area Basin is currently designated as a non-attainment area for state and national ozone standards, state particulate matter (PM₁₀ and PM_{2.5}) standards, and federal PM_{2.5} (24-hour) standard, as shown in Table 5. Areas designated as non-attainment are required to prepare air quality plans that demonstrate how the regional plan to attain the air quality standards.

⁸ For the purposes of air quality analysis, sensitive receptors are defined as facilities and land uses where people spend extended amounts of time or that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive uses include residences, schools, hospitals, and daycare centers. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, and/or duration of exposure to air pollutants.

**TABLE 5
 AMBIENT AIR QUALITY STANDARDS AND SAN FRANCISCO AIR BASIN ATTAINMENT STATUS**

Pollutant	Averaging Time	State Standard	SF Air Basin Attainment Status for California Standard	Federal Primary Standard	SF Air Basin Attainment Status for Federal Standard
Ozone	8 hour	0.070 ppm	Non-Attainment	0.070 ppm ¹	Non-Attainment
	1 hour	0.090 ppm	Non-Attainment	---	---
Carbon Monoxide	8 hour	9.0 ppm	Attainment	9 ppm	Attainment
	1 Hour	20 ppm	Attainment	35 ppm	Attainment
Nitrogen Dioxide	Annual Average	0.030 ppm	---	0.053 ppm	Attainment
	1 Hour	0.18 ppm	Attainment	0.100 ppm	See Note 2
Sulfur Dioxide	Annual Average	---	---	0.03 ppm	See Note 3
	24 Hour	0.04 ppm	Attainment	0.14 ppm	See Note 3
	1 Hour	0.25 ppm	Attainment	0.075 ppm	See Note 3
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	Non-Attainment	---	---
	24 hour	50 µg/m ³	Non-Attainment	150 µg/m ³	Unclassified
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	Non-Attainment	12 µg/m ³	Unclassified/Attainment ⁴
	24 hour	---	---	35 µg/m ³	Non-Attainment
Sulfates	24 hour	25 µg/m ³	Attainment	---	---
Lead	Calendar Quarter	---	---	1.5 µg/m ³	Attainment
	30 Day Average	1.5 µg/m ³	---	---	Attainment
	Rolling 3-month Average	---	---	0.15 µg/m ³	See Note 5
Hydrogen Sulfide	1 hour	0.03 ppm	Unclassified	---	---
Vinyl Chloride	24 hour	0.010 ppm	No information available	---	---
Visibility Reducing Particles	8 hour (10:00 to 18:00PST)	Extinction of 0.23/km when the relative humidity is less than 70 percent; visibility of 10 miles or more	Unclassified	---	---

NOTES:

- ¹ On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.
- ² To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.
- ³ On June 2, 2010, the U.S. EPA established a new 1-hour SO₂ standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO₂ NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO₂ NAAQS. EPA expects to make designation for the Bay Area by the end of 2017.
- ⁴ In December 2012, EPA strengthened the annual PM 2.5 National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter (µg/m³). In December 2014, EPA issued final area designations for the 2012 primary annual PM 2.5 NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.
- ⁵ National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

ppm = parts per million
 µg/m³ = micrograms per cubic meter

SOURCES: BAAQMD, 2017, Air Quality Standards and Attainment Status. Obtained online April 10, 2018. Available: <http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status>

The most recently adopted air quality plan to address non-attainment issues for the Bay Area Basin is the *2017 Bay Area Clean Air Plan (2017 CAP)*. The 2017 CAP provides a regional strategy to protect public health and protect the climate by continuing progress toward attaining all state and federal air quality standards; eliminating health risk disparities from exposure to air pollution among Bay Area Basin communities; transitioning the region to a post-carbon economy needed to achieve greenhouse gas (GHG) reduction targets mandated by the State for 2030 (40 percent emissions reductions below 1990 levels) and 2050 (80 percent reduction below 1990 levels); and providing a regional climate protection strategy that would put the Bay Area Basin on a pathway to achieve those GHG reduction targets. The 2017 CAP includes a wide range of 85 control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants (TACs); to reduce emissions of methane and other “super-GHGs” that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion (BAAQMD, 2017).

The Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* were published in 1999 and updated in 2017 to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area (BAAQMD, 2017). The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. Construction and operational impacts of the Project have been addressed separately under each impact discussion, when applicable.

Impacts Site A2 and Site A4

The BAAQMD CEQA Guidelines recommend that a project’s consistency with the current CAP be evaluated using the following three criteria:

- a. The project supports the goals of the Air Quality Plan,
- b. The project includes applicable control measures from the CAP, and
- c. The project does not disrupt or hinder implementation of any control measures from the CAP.

If it can be concluded based on substantial evidence that the project would be consistent with the above three criteria, then the BAAQMD considers the project to be consistent with air quality plans prepared for the Bay Area.

The primary goals of the 2017 CAP are to attain air quality standards, reduce population exposure, protect public health in the Bay Area, reduce GHG emissions, and protect the climate. The BAAQMD-recommended measure for determining if a project supports the goals in the 2017 CAP is consistency with BAAQMD thresholds of significance. If a project would not result in exceeding

the BAAQMD thresholds of significance after the application of all feasible mitigation measures, the project is considered to be consistent with the 2017 CAP.

General basin-wide, construction-related emissions are included in the BAAQMD emission inventories that form the basis of air quality planning assumptions used in the preparation of Clean Air Plans. Therefore, temporary construction emissions that do not exceed the significance thresholds are not expected to prevent attainment or maintenance of the ozone, particulate matter, and carbon monoxide levels within the Bay Area and hence not conflict with the goals of the 2017 CAP. As detailed in the discussion below, with regard to air quality impact question b), the Project's estimated construction emissions would be less than the BAAQMD significance thresholds, with the implementation of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, specifically, Section 3.3 Dust Control and Monitoring and Section 3.4 Emissions Control, which together include all the BAAQMD-recommended mitigation measures.

Once operational, the Project would be powered by electricity and would not generate emissions or fumes from the operation of the pumps or the transformer. The Project is expected to generate about one worker trip per week for pump station operation and maintenance, which would generate a negligible amount of emissions. As detailed in the discussion of operational emissions under question b), these emissions would be well below the BAAQMD's significance thresholds for operation.

As the Project would not exceed the BAAQMD's recommended significance thresholds for both construction and operation, which form the basis of air quality planning assumptions in the preparation of the 2017 CAP, the Project would be considered to be consistent with the goals of the 2017 CAP.

The 2017 CAP contains 85 control measures aimed at reducing air pollution in the Bay Area. Projects that incorporate all feasible air quality plan control measures are considered consistent with the CAP. There are two control measures in the 2017 CAP to reduce emissions of criteria pollutants, TACs and GHG emissions, from the water sector by encouraging water conservation, limiting GHG emissions from Publicly Owned Treatment Works (POTWs), and promoting the use of biogas recovery systems. Neither of these measures would apply to the Project which includes water pumping facilities and pipelines and therefore, no inconsistencies with the 2017 CAP are identified.

With no specific control measures from the 2017 CAP applicable to water pumping facilities and pipelines, the Project would not be considered to hinder implementation of CAP control measures.

In summary, the Project would be consistent with all three criteria listed above to evaluate consistency with the CAP, and therefore would not conflict with or obstruct implementation of the 2017 CAP during both construction and operation.
(Less than Significant)

b) Setting

The Bay Area Basin experiences occasional violations of ozone and particulate matter (PM₁₀ and PM_{2.5}) standards. Thus, during the construction and operational phase of any given project that generates emissions, there is a potential for local and basin wide violations to occur.

Impacts Site A2 and Site A4**Construction Emissions**

Construction activities are short-term and typically result in emissions of ozone precursors (reactive organic compounds [ROG] and nitrogen oxides [NO_x]) as well as particulate matter in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe emissions). Project-related excavation, grading, and other construction activities could cause wind-blown dust that would contribute particulate matter into the local atmosphere. Dust can be an irritant causing watering eyes or irritation to the lungs, nose, and throat. Depending on exposure, adverse health effects can occur due to particulate matter in general. Criteria pollutant emissions would be generated by exhaust from construction equipment, on-road vehicle trips of haul trucks for delivering construction material and removing debris and excavation spoils, and construction worker commutes to and from the Project site. ROG_s are also emitted from activities that involve painting, other types of architectural coatings, and asphalt paving. Emission levels from these activities would vary depending on the number and types of equipment used, duration of use, operation schedules, and the number of construction workers. Criteria pollutant emissions from these emission sources would incrementally add to the regional atmospheric loading of ozone precursors during Project development.

Construction-related criteria air pollutant emissions for the Project were estimated using CalEEMod (California Emissions Estimator Model, version 2016.3.1). Project specific data for construction phasing schedule and equipment fleet was used in the model to estimate emissions (refer to Appendix B). Table 6 shows unmitigated construction exhaust emissions for both Sites A2 and A4. The emissions associated with pump station construction would be similar for both sites. However, emissions associated with the construction of the pipelines would vary between the two sites. The pipeline at Site A2 would be up to 150 feet long and connect the pump station to an existing recycled water pipeline and a new isolation valve immediately in front of the pump station on Dougherty Road. The discharge pipeline for Site A4 would be approximately one-mile-long and connect the pump station to a recycled water header north of the Dougherty Road/ North Monarch Road/North Gale Ridge Road intersection. As shown in Table 6, emissions of all criteria pollutants would be below their respective significance thresholds for both sites A2 and A4. Therefore, the Project would have a less than significant impact related to construction criteria air pollutant emissions.

Rather than quantifying fugitive dust (non-exhaust) emissions to evaluate impacts, BAAQMD emphasizes the implementation of appropriate mitigation measures for dust control during all construction activities. The BAAQMD Guidelines provide feasible control measures for construction emission of PM₁₀ to reduce construction impacts from fugitive dust.

TABLE 6
UNMITIGATED EMISSIONS FROM CONSTRUCTION (AVERAGE POUNDS PER DAY)^a

	ROG	NO _x	PM ₁₀	PM _{2.5}
Site A2 including pipelines				
Average Daily Construction Emissions	3.3	32.6	1.35	1.26
BAAQMD Thresholds	54	54	82	54
Significant (Yes or No)?	No	No	No	No
Site A4 including pipelines				
Average Daily Construction Emissions	3.9	38.9	1.6	1.5
BAAQMD Thresholds	54	54	82	54
Significant (Yes or No)?	No	No	No	No

^a Project construction emissions were estimated using CalEEMod, version 2013.2.2. Emissions are average daily pounds per day and are estimated by dividing the total construction emissions generated by the Project with the total number of construction workdays.

SOURCE: ESA, 2016.

EBMUD implements a number of standard practices and procedures in all its projects, including this Project. This includes Standard Construction Specification 01 35 44, Environmental Requirements, which includes appropriate construction emission management practices and all the BAAQMD recommended control measures to reduce impacts from fugitive dust that would be implemented as part of the Project, and includes:

Section 1.3.E of EBMUD's Standard Construction Specification 01 35 44 requires a Dust Control and Monitoring Plan that details the means and methods for controlling and monitoring dust generated by construction activities on the site.

Section 3.3.B of EBMUD's Standard Construction Specification 01 35 44 requires that construction contractors implement all necessary dust control measures, including but not limited to the following:

- Water and/or coarse rock all dust-generating construction areas as directed by Engineer to reduce the potential for airborne dust from leaving the site.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Using wet power vacuum street sweepers to:
 - Sweep all paved access road, parking areas and staging areas at the construction site daily or as often as necessary.
 - Sweep public roads adjacent to the site at least twice daily or as often as necessary.
- The use of dry power sweeping is prohibited.

- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Water and/or cover soil stockpiles daily.
- Site accesses to a distance of 100 feet from the paved road shall be treated with 12-inches layer of compacted coarse rock.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- Wind breaks (e.g., fences) shall be installed on the windward sides(s) of actively disturbed areas of construction. Wind breaks should have a maximum 50 percent air porosity.
- All vehicle speeds shall be limited to fifteen (15) mph or less on the construction site and any adjacent unpaved roads.

Implementation of Section 1.3.E, Dust Control and Monitoring Plan, and Section 3.3.B, Dust Control, of EBMUD's Standard Construction Specification 01 35 44 ensures that dust generated by short-term construction activities would be monitored and controlled to minimize short-term construction dust emissions.

Section 1.3.I of EBMUD's Standard Construction Specification 01 35 44 requires tune-up logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tune-ups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3.I, Tune-up Logs, of Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site would be maintained regularly for efficient operation, reducing exhaust emissions generated during operation.

Section 3.4.A of the EBMUD Standard Construction Specification 01 35 44 includes the following requirements that would reduce emissions from construction equipment and exposure to receptors:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emissions controls such as:
 - Minimize the use of diesel generators where possible
 - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
 - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
 - Locate generators at least 100 feet away from adjacent homes and ball fields.
 - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
- Contractor shall implement the following measures to reduce greenhouse gas emissions from fuel combustion:
 - On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
 - Construction equipment engines shall be maintained to manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
 - All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of Oxide of Nitrogen (NO_x) and Particulate Matter (PM).

- Demolition debris shall be recycled for reuse to the extent feasible. See the Construction and Demolition Waste Disposal Plan paragraphs above for requirements on wood treated with preservatives.

Implementation of Section 3.4.A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs would be implemented to minimize short-term construction diesel exhaust emissions.

As the estimated construction emissions from the Project would be less than the recommended BAAQMD significance thresholds for construction, and because Section 1.3.E, Dust Control and Monitoring Plan; Section 1.3.I, Tune-up Logs; Section 3.3.B, Dust Control; and Section 3.4.A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require a Dust Control and Monitoring Plan, regular maintenance of construction vehicles and equipment and include provisions for BMPs for dust and air quality emissions control, the Project's air quality impacts related to short-term construction particulate matter impacts and short-term diesel- and gasoline-powered construction equipment emissions would be less than significant. (**Less than Significant**)

Operational Emissions

Once operational, the pump station would be operated remotely via the EBMUD's Supervisory Control and Data Acquisition (SCADA) system. The operating hours of the pump station would vary, but in general would be operated to avoid high electrical tariff rates (e.g., between noon and 6:00 pm). The Project is expected to generate about one worker trip per week for pump station operation and maintenance, which would produce negligible emissions. As the pumps would be powered by electricity, which would not generate any direct air pollutant emissions, and as the Project would not include any other sources that generate onsite emissions during operations, the Project's air quality operational impact would be less than significant. (**Less than Significant**)

c) **Setting**

Based on BAAQMD CEQA guidance, if a project would result in an increase in ROG, NO_x, PM₁₀, or PM_{2.5} of more than their respective daily mass thresholds, then it would also be considered to contribute considerably to a significant cumulative impact. In developing thresholds of significance for air pollutants, BAAQMD has considered the emission levels for which a project's individual emissions would be cumulatively considerable. Therefore, if a project would exceed the identified significance thresholds, its emissions would be cumulatively considerable, and if a project would not exceed the significance thresholds, its emissions would not be cumulatively considerable.

Impacts Site A2 and Site A4

As shown in Table 6, criteria pollutant emissions generated by Project construction would be less than the identified significance thresholds. As the only source of emissions would be from the one weekly worker commute trip for pump station maintenance, the Project would not include any operational sources of criteria pollutant emissions. Therefore, the operational impact would also be less than significant.

By its very nature, air pollution is largely a cumulative impact. Past, present and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds individually, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. No single project is sufficient in size to, by itself, result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. Given the less than significant Project level construction and operational impacts, the Project would not be considered to result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment (see discussion for checklist item b, above). **(Less than Significant)**

d) Setting

BAAQMD defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, colleges and universities, daycares, hospitals, and senior-care facilities. Sensitive receptors closest to the Site A2 are the residences located along Ivy Point Circle approximately 150 feet west of Site A2. Sensitive receptors closest to Site A4 are the residences on Laurelspur Loop are located as close as 170 feet from Site A4.

Impacts Site A2 and Site A4

Construction of the Project would result in short-term diesel exhaust emissions including diesel particulate matter (DPM) from the use of off-road diesel equipment required for construction activities. DPM is a complex mixture of chemicals and particulate matter that has been identified by the State as a TAC with potential cancer and chronic non-cancer effects. Exposure of sensitive receptors to these emissions is the primary factor used to determine health risk. Exposure is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. A longer exposure period would result in a higher exposure level. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time.

According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the lifetime exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period;

however, short term assessments should be limited to the period/duration of activities associated with the Project. Thus, the two-year duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period over the lifetime of a receptor for exposure to toxic emissions. In addition, as discussed under checklist item b) above, emissions of all criteria pollutants, including fugitive PM_{2.5}, would be less than two pounds per day for both sites A2 and A4, which is way below the respective significance threshold. Further, implementation of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, specifically, Section 1.3.I Tune-up Logs, Section 3.3.B, Dust Control, and Section 3.4 Emissions Control would, in addition to other measures, as discussed under checklist item a) above, require construction contractors to maintain construction equipment used at the Project site regularly for efficient operation, monitor and control dust generated by short-term construction activities, and use construction equipment, diesel trucks, and generators equipped with Best Available Control Technology for emission reductions of TACs, which would ensure that potential DPM emissions from Project construction would be reduced and not result in significant health risks at nearby receptors resulting in a less than significant impact. **(Less than Significant)**

Operational-related TAC's could include diesel exhaust emissions from generators. However, the Project would include electric powered pumps, and no diesel-powered equipment would be used. As described in Section 1.7 of the Project Description, one worker vehicle trip per week is anticipated for the maintenance and operation of the pump station. Operation of the pump station and associated facilities is not expected to generate DPM emissions as there would be no TAC sources located or used at Site A2 or Site A4. Therefore, the Project operations would not contribute to existing health risks at the nearest off-site sensitive receptors in the Project vicinity. **(Less than Significant)**

e) **Site A2 and Site A4**

As a general matter, the types of land use development that pose potential odor problems include wastewater treatment plants, refineries, landfills, composting facilities and transfer stations.

Short-term construction activities using diesel powered construction equipment and vehicles that emit diesel- and/or gasoline- engine exhaust odors could be a potential source of objectionable odors and noticeable in the immediate vicinity up to about 50 feet from the operating equipment. However, as construction odors would be temporary, the location of the construction equipment would vary spatially at different points on the sites, and as there are no receptors within 50 feet of the two sites under consideration, which could be affected by these odors, any odors generated during Project construction would not affect a substantial number of people. In addition, the restriction of construction activities to daylight work hours and the implementation of the EBMUD standard practices and procedures described below would reduce this potential impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 1.3.I of this specification requires tune-up logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance and requires:

- Submittal of a log of required tune-ups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review.

Implementation of Section 1.3.I, Tune-up Logs, of EBMUD's Standard Construction Specification 01 35 44 ensures that construction equipment used at the Project site would be maintained regularly for efficient operation, reducing exhaust emissions to the environment that could generate objectionable odors.

Section 3.4.A of EBMUD's Standard Construction Specification 01 35 44 includes the following provisions for air quality and emissions control:

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, ATCM for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.
- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with CARB or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emission controls such as:
 - Minimize the use of diesel generators where possible.
 - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes as required by the California ATCM, Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
 - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.

- Locate generators at least 100 feet away from adjacent homes.
- Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.

Implementation of Section 3.4.A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44 ensures specified air emissions control BMPs would be implemented to minimize short-term construction diesel exhaust emissions that could generate objectionable odors.

Because Section 1.3.I, Tune-up Logs, and Section 3.4.A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and require regular maintenance of construction vehicles and equipment, and include provisions for BMPs for air emissions control, the Project impact related to creation of objectionable odors affecting a substantial number of people during construction would be less than significant. **(Less than Significant)**

Operation of a pump station that uses pumps powered by electricity to pump recycled water would not generate any odors. Therefore, the Project would not create objectionable odors during operation that would affect a substantial number of people. **(No Impact)**

References

BAAQMD, *Clean Air Plan*, September 15, 2010. Available: <http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Clean-Air-Plans.aspx>

BAAQMD, *BAAQMD CEQA Air Quality Guidelines – Assessing the Air Quality Impacts of Projects and Plans*, December 1999.

BAAQMD, 2017. *BAAQMD CEQA Air Quality Guidelines*, adopted June 2, 2010, revised May 2017.

BAAQMD, 2017 Clean Air Plan: Spare the Air, Cool the Climate, adopted April 19, 2017.

EBMUD, Environmental Compliance Manual, Section 01 35 44, Environmental Requirements, March 2, 2018.

2.2.4 Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
4. BIOLOGICAL RESOURCES — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

The Project sites are south of Mt. Diablo, on the north end of the Diablo Range, within the Coast Range province and consist of non-native grasslands, landscaped, or developed communities in the City of San Ramon’s Dougherty Valley in the southwest region of Contra Costa County. The valley is situated east of I-680 within the San Ramon Creek watershed. West Alamo Creek is approximately 100 feet south of Site A2 and is surrounded by a City of San Ramon designated Critical Wildlife Habitat, which extends to approximately 50 feet south of proposed Site A2 construction activities.

The biological analysis presents the findings of data review and of a reconnaissance-level site assessment⁹ pertaining to terrestrial biological resources of the Study Areas. Use of the term “Study Area” in this section refers to the area where direct, indirect, or cumulative effects could occur to terrestrial biological resources as a result of the Project. The Study Areas are shown on Figure 7a, and generally include the Project sites and adjacent habitats. The Lilac Ridge Road Study Area includes the hillside up to and

⁹ ESA biologist Elizabeth Hill surveyed the Study Area on July 28, 2016, to identify potential presence and distribution of common and special-status plant and wildlife species, and sensitive natural communities (ESA, 2016b).

including the ridgeline above Site A4 and Staging Area 2, in addition to the hillside below these sites. The Crow Canyon Road Study Area includes Staging Area 1 and the grasslands and trees immediately to the southeast. Landscaped and developed areas adjacent to Site A2 are considered part of the Dougherty Road Study Area.

Plant Communities and Wildlife Habitats

Plant communities are assemblages of plant species that present a characteristic appearance based on size, shape, and spacing of the plants that are the predictable result of plants' interaction with specific environments.¹⁰ No rare or sensitive plant communities were identified within the Study Areas. Plant communities generally correlate with wildlife habitat types and those found within each Study Area; described in detail below. Table 7 indicates the plant communities for each Study Area.

**TABLE 7
PLANT COMMUNITIES WITHIN BIOLOGICAL RESOURCES STUDY AREAS**

Study Areas	Plant Communities	
	Landscaped/Developed	Non-Native Grassland
Crow Canyon Road Study Area (Staging Area 1)	Dominated by developed or disturbed areas, though portions of it are covered by landscaped vegetation, including native and non-native shrubs and trees.	Non-native grassland is located in the southern portion of the Study Area.
Dougherty Road Study Area (Potential Pump Station Site A2)	Dominated by landscaped native and non-native vegetation.	N/A
Lilac Ridge Road Study Area (Potential Pump Station Site A4 and Staging Area 2)	Access road to Staging Area 2 and other existing Reservoir R200 represents developed infrastructure.	Non-native grassland habitat dominates areas adjacent to Site A4 and Staging Area 2.

Landscaped/Developed

Native and non-native vegetation species found in landscaped and developed areas include coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), toyon (*Heteromeles arbutifolia*), pine (*Pinus* sp.), Pacific rhododendron (*Rhododendron macrophyllum*), manzanita (*Arctostaphylos* sp.), coyote brush (*Baccharis pilularis*), Peruvian pepper tree (*Schinus molle*), chamise (*Adenostoma fasciculatum*), and rosemary (*Rosmarinus officinalis*). Irrigation has been applied to the majority of the landscaped areas to encourage the establishment of planted trees and shrubs.

Generally, plant cover in developed or disturbed areas is scarce due to the lack of topsoil. Developed or disturbed areas have been subject to intense or recurring disturbance, generally through soil compaction, paving, or removal or alteration of native vegetation. Pavement and ruderal ground characterize the Study Areas, which typically does not support high quality vegetation or wildlife habitat. However, the limited amount of vegetation present can be characterized by a small number of weedy and/or native plant

¹⁰ The classification of communities presented here is based on A Manual of California Vegetation. Second Edition. John O. Sawyer, Todd Keeler-Wolf, and Julie M. Evens. 2009. *A Manual of California Vegetation. Second Edition.* California Native Plant Society, Sacramento, California, USA.

species including yellow star thistle (*Centaurea solstitialis*), coyote brush (*Baccharis pilularis*), wild oat (*Avena fatua*), and sweet fennel (*Foeniculum vulgare*).

Common avian wildlife found in landscaped and developed areas include red-breasted sapsucker (*Sphyrapicus ruber*), acorn woodpecker (*Melanerpes formicivorus*), western scrub-jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), and American bushtit (*Psaltriparus minimus*). Mammals commonly associated with landscaped and developed areas include California ground squirrel (*Otospermophilus beecheyi*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), and common bats.

Non-Native Grassland

Non-native grassland is composed of a dense cover of non-native annual grasses often associated with numerous annual and perennial herbs. Plant species associated with non-native grassland usually germinate in the late winter, grow actively during the winter and early spring, then produce numerous seeds that remain dormant during the summer and early fall. Species of the non-native grassland community identified during the reconnaissance-level site assessment include numerous common non-native annual grasses, such as annual fescue (*Vulpia* sp.), wild oat, and bromes (*Bromus hordeaceus*, *B. diandrus*, and *B. madritensis*). Associated non-native herbs typically found in the Study Areas include black mustard (*Brassica nigra*) and filaree (*Erodium botrys*, *E. cicutarium*), in addition to invasive yellow star-thistle, Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), and sweet fennel. Sparse occurrences of dock (*Rumex* sp.) can be found in the Study Areas.

Common and characteristic wildlife observed during the reconnaissance-level site assessment in non-native grassland include song sparrow (*Melospiza melodia*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferous*), and black phoebe (*Sayornis nigricans*). Mammals common to non-native grassland are similar to those found in the Landscaped/Developed habitat described above.

Special-Status Species

A number of species known to occur in the Study Areas vicinities are protected pursuant to federal and/or State endangered species laws, or have been designated Species of Special Concern by the California Department of Fish and Wildlife (CDFW). In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered or threatened species that are not included in any listing.¹¹ Per Section 15380(b), a species of animal or plant is: (1) “Endangered” when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or (2) “Rare” when either: (A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may

¹¹ For example, vascular plants listed as rare or endangered or as CRPR Rank 1 or 2 are considered to meet Section 15380(b). Under some circumstances, CRPR Rank 3 or 4 species, or other species with locally limited distribution may also warrant consideration under CEQA.

become endangered if its environment worsens; or (B) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in the Federal Endangered Species Act.

A list of special-status species with potential to occur on or in the vicinity of the Project’s Study Areas was compiled from a California Natural Diversity Database (CNDDDB) nine-quad search for the following 7.5-minute United States Geological Survey (USGS) topographic quadrangles: Diablo, Antioch South, Clayton, Dublin, Hayward, Livermore, Tassajara, Las Trampas Ridge, and Walnut Creek (CDFW, 2018); a nine-quad search on the California Native Plant Society’s (CNPS) Rare Plant Inventory (CNPS, 2018); a search of the Project Study Areas from the U.S. Fish and Wildlife Service endangered species database (USFWS, 2018); and biological literature of the region. Appendix C presents a comprehensive list of special-status plant and wildlife species that were included in the database searches. Special-status plants are not expected at any of the Project Study Areas based on the database searches and a review of available habitat at each Study Area.

Figure 7b shows the documented CNDDDB species occurrences in the vicinity of the Study Areas, some of which have a moderate potential to occur as discussed below.¹²

However, a majority of these species are unlikely to occur in the Project Study Areas, or be affected by the Project, due to the Project’s location being outside of special-status species’ geographic range; habitats are of poor quality; or unsuitable conditions occur in the Project Study Areas (CDFW, 2018; CNPS, 2018; USFWS, 2018). From the full list of species in Appendix C, each special-status species was then individually assessed based on habitat requirements and distribution relative to vegetation communities that occur in and around the respective Study Areas. Table 8 lists the special-status species that have at least a moderate potential to occur within the Study Areas based on the database searches and the reconnaissance-level site assessment.

¹² Please see Appendix C for all the listed and special-status species considered for the Project.

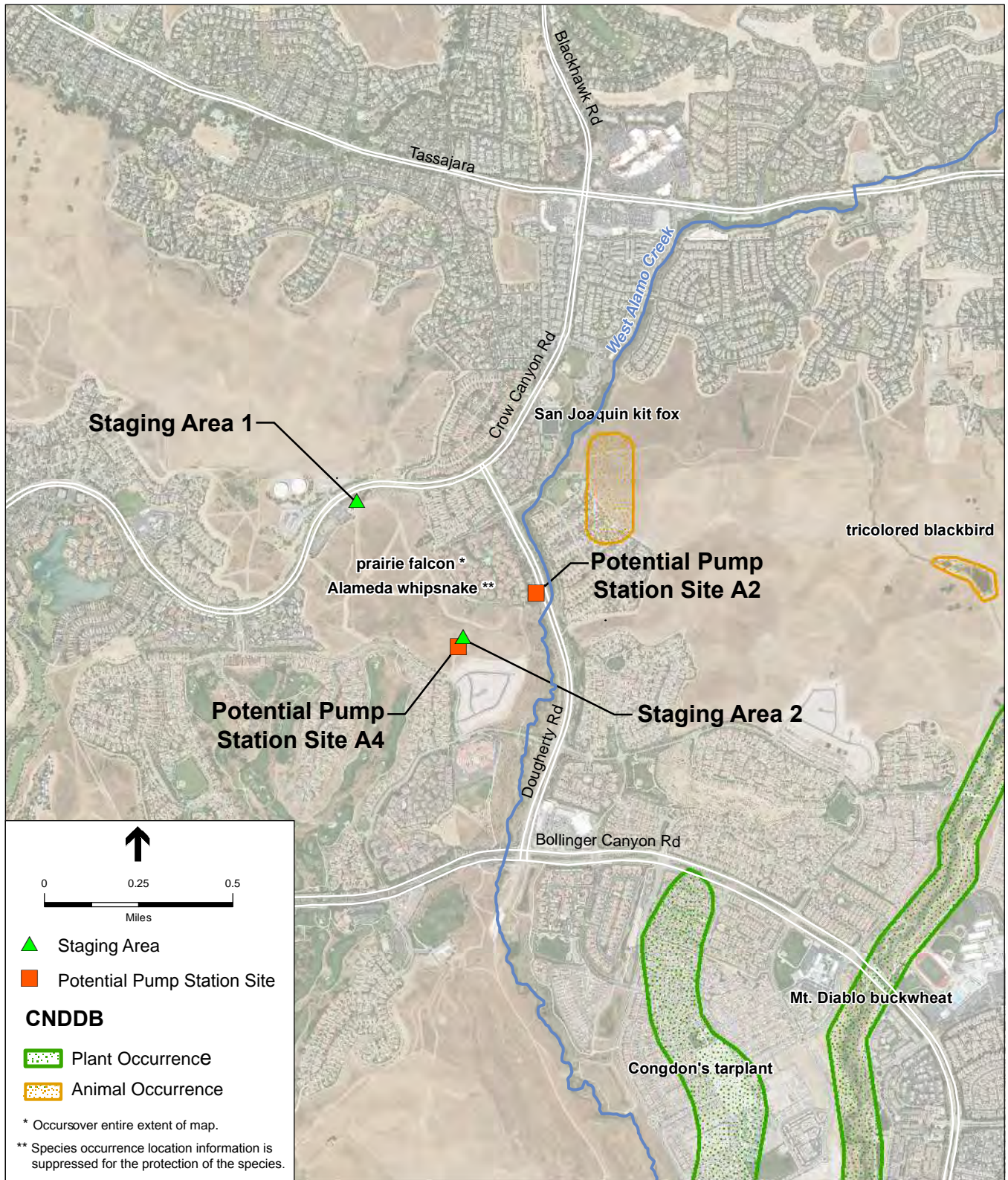


Note: Refer to Figures 3 and 4 for pipeline alignments.

SOURCE: Google Earth, 2018; ESA, 2018

SRVRWP Pump Station R3000 . 160455

Figure 7a
Project Biological Resources Study Areas



SOURCE: CDFW, 2018

SRVRWP Pump Station R3000 . 160455

Figure 7b
CNDDDB Species Occurrences in the Project Vicinity

Note: The distance to the nearest documented California red-legged frog occurrence from either proposed pump station site or staging area is 2.5 miles east of Site A2, beyond the extent of the map.

TABLE 8
SPECIAL-STATUS SPECIES THAT MAY OCCUR WITHIN STUDY AREA

Name	Listing Status	General Habitat Requirements	Occurrence	Potential for Species Occurrence Within the Study Areas
Amphibians				
California red-legged frog (<i>Rana draytonii</i>)	FT/ CT	Freshwater pools, ponds, reservoirs, and slow- moving streams with overhanging vegetation. Also found in woods adjacent to streams. Requires permanent or ephemeral water sources and needs pools of >0.5 m depth for breeding.	Historical range is Sacramento Valley east into the Sierra Nevada foothills.	Moderate Potential. Site A2 is less than 100 feet from the west branch of Alamo Creek, which could provide suitable migrating habitat for CRLF. Non-native grasslands in the vicinity of Crow Canyon Road and Lilac Ridge Road Study Areas unlikely to support migrating CRLF due to human disturbance and lack of aquatic habitat. The nearest occurrence of this species was documented approximately 2.5 east of the Study Area in a large detention pond.
Birds				
Cooper's hawk (<i>Accipiter cooperii</i>)	CDFW §3503.5	Forests, woodlands, and fields. Will also inhabit trees in suburban areas in parks and neighborhoods.	Widespread across California and the United States.	Moderate potential. A common raptor; open habitat areas exist nearby the proposed Project sites that could support this raptor. Large trees adjacent to Projects sites may provide nesting habitat.
Burrowing owl (<i>Athene cunicularia</i>)	BCC-/CSC (burrowing sites)	Nests and forages in low-growing grasslands with burrowing mammals	Interior areas of San Francisco Bay, with larger numbers in Alameda, Contra Costa, and Santa Clara counties.	Moderate potential. Although routine mowing activities and exposure to human disturbance is routine in Lilac Ridge Road Study Area, mammal burrows are present in the existing Reservoir R200 site (Staging Area 2), which could provide suitable habitat for burrowing owl (BUOW). Potential foraging and nesting habitat could be found near proposed Site A4.
Red-tailed hawk (<i>Buteo jamaicensis</i>)	CDFW §3503.5	Occupies numerous types of open habitat including desert, scrublands, grasslands, roadsides, fields and pastures. Commonly found at field edges and perched on fences, poles, and trees. Nests in tall trees.	Widespread across California and the United States.	Moderate potential. Common raptor. Open habitat areas exist nearby the Project site that could support this raptor. Large trees adjacent to Projects sites may provide nesting habitat.
Swainson's hawk (<i>Buteo swainsoni</i>)	--/ST	Summer resident; breeds in lower Sacramento and San Joaquin valleys, the Klamath Basin, and Butte Valley.	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields	Moderate potential. Trees near West Alamo Creek could provide nesting habitat for Swainson's hawk.

Status Codes:

USFWS (U.S. Fish and Wildlife Service)

FE = Listed as Endangered by the Federal Government

FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government. CDFW (California Department of Fish and Wildlife)

CE = Listed as Endangered by the State of California

CT = Listed as Threatened by the State of California

CSC = California Species of Special Concern

§3503.5 = CDFW Fish and Game Code Section §3503.5; this code protects nesting raptors and birds of prey

Potential to Occur Categories:

Low Potential = The project areas and/or immediate vicinities only provide limited habitat. In addition, the species' known range may be outside of the project areas.

Moderate Potential = The project areas and/or immediate vicinities provide suitable habitat.

High Potential = The project areas and/or immediate vicinity provide ideal habitat conditions.

SOURCES: CDFW, 2018; CNPS, 2018; USFWS, 2018a; USFWS, 2018b; USFWS, 2018c.

Impacts

- a) The biological inventory database searches and field studies identified several special-status wildlife species that have an absent to low potential to occur within the Study Area. These species were dismissed from further analysis due to lack of primary habitat; routine mowing activities and general human disturbance present in the Study Areas; and/or the database record was considered historical. Some of these species are displayed on Figure 7b due to their historical presence, or because they have occurred in habitat not found within any of the Study Areas. Few species were considered to have a moderate potential to occur and be potentially affected by the Project. These species are listed in Table 8 and are discussed further below. The following discussion presents special-status wildlife species with a moderate potential to occur in the Project Study Areas and describes potential Project impacts within each Study Area (if any), as well as mitigation measures, as applicable.

Special-status Amphibians

California Red-legged Frog. The California red-legged frog (*Rana draytonii*) (CRLF) is a federally threatened species and a state species of special concern. The nearest USFWS-designated Critical Habitat for CRLF is 2.75 miles east of the Dougherty Road Study Area. The distance to the nearest documented CRLF occurrence from any Project Study Area is 2.5 miles east of Site A2 in a large detention pond (CDFW, 2018). Although CRLF are known to migrate across grasslands, no CRLF were observed during the biological site reconnaissance survey at any of the Project Study Areas. The overall lack of aquatic habitat at Crow Canyon Road and Lilac Ridge Road Study Areas provides little opportunity during both construction and operation of the Project for CRLF to forage, seek cover, or breed in creeks or drainage segments in the vicinity of these Study Areas, which includes Site A4, Staging Area 2, and Staging Area 1. Furthermore, these areas are exposed to human disturbance such as nearby residential development construction, vehicle traffic, and recreation, which makes these areas unsuitable habitat for the CRLF. As such, potential construction and operational impacts to CRLF foraging and breeding habitat in the Crow Canyon Road and Lilac Ridge Road Study Areas are considered less than significant.

The Dougherty Road Study Area, which includes Site A2, is less than 100 feet from the west branch of Alamo Creek. Although Site A2 provides limited upland estivation or dispersal opportunities for CRLF due to the adjacent roadway, potential CRLF daily and seasonal movements in the Alamo Creek riparian corridor may be indirectly affected during Project construction activities. Adverse effects may include increased visual disturbance as a result of construction personnel, and increased noise and substrate vibrations as a result of heavy equipment use and construction personnel, both of which may cause individuals to move out of refugia exposing them to a greater risk of predation or desiccation. These impacts are considered significant. Site A2 operational impacts to CRLF are considered less than significant due to the small footprint of the Site A2

facility, limited habitat value of the site, and minimal presence of humans and vehicles at the site during operations.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, which would require all contractor construction personnel to attend an environmental training program provided by the District of up to one-day for site supervisors, foreman and project managers, and up to 30-minutes for non-supervisory contractor personnel, prior to the beginning of construction. The training program shall be completed in person or by watching a video at an EBMUD-designated location, conducted by a qualified biologist provided by EBMUD. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including CRLF, and the responsibilities of contractor's construction personnel, applicable mitigation measures, and notification requirements. The contractor is responsible for ensuring that all workers requiring training are identified to EBMUD. However, potential CRLF daily and seasonal movements in the Alamo Creek riparian corridor may be indirectly affected during Project construction activities. These impacts include visual disturbance as a result of construction personnel, and increased noise and substrate vibrations as a result of heavy equipment use and construction personnel. Even with compliance with EBMUD construction specification, there is potential for individuals to move out of refugia exposing them to a greater risk of predation or desiccation. This impact would be considered significant. Implementation of **Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for California Red-legged Frog** and **Mitigation Measure BIO-2: Wildlife Exclusion Fencing** would require CRLF pre-construction surveys at Site A2 and installation of wildlife exclusion fencing along the southeast portion of Site A2 to isolate construction activities and deter CRLF from potentially migrating into the construction site. Pre-construction project site surveys are the best method for assessing whether CRLF are present where suitable habitat is present. The egress points constructed in the exclusion fencing would further reduce impacts to CRLF, allowing individuals to exit the construction site in the event they became trapped. With implementation of this mitigation measure, impacts to CRLF are considered less than significant. **(Less than Significant with Mitigation)**

Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for California Red-legged Frog.

Within 24 hours before any construction activities that involve ground disturbance or vegetation removal a USFWS approved biologist will conduct pre-construction surveys for CRLF at Site A2. The survey area will include all habitats suitable for these species within a 300-foot buffer of the work limits. Whenever a lapse in project-related construction activity of 2 weeks or greater has occurred these areas will be re-inspected. If CRLF(s) (including eggs, larvae, or adult forms) is/are found

during pre-construction surveys, the biologist will contact USFWS and/or CDFW to determine whether their relocation is appropriate and if additional measures are necessary. Construction activities will not proceed until consultation and/or relocation activities are complete.

A monitoring report of all activities associated with surveys and mitigation for the CRLF will be submitted to the USFWS and CDFW by EBMUD no later than three months after construction is completed. The monitoring report will describe methods and results of any field survey efforts and mitigation measures implemented before, during or after project construction.

Mitigation Measure BIO-2: Wildlife Exclusion Fencing.

A multi-purpose protective barrier (such as silt fencing) or CDFW-approved species exclusion fencing shall be constructed at Site A2 to deter common and special status wildlife in the West Alamo Creek riparian corridor from entering into the Project construction work limits. Fence installation shall be overseen by a qualified biologist. The fence shall be a minimum height of 3 feet above ground surface with an additional 4-6 inches of fence material buried such that species cannot crawl under the fence. The fencing will be installed along the south boundary of Site A2, starting from Dougherty Road and extending approximately 265 linear feet west to the West Alamo Creek Trail. The barrier shall be installed adjacent to the existing chain-link fence, where feasible. At the southeastern boundary of Site A2, the exclusion fence shall extend approximately 90 linear feet to the south along the existing chain-link fence.

- The fencing will contain one-way egress for sensitive species to the extent possible;
- Signage shall be installed on the fencing to identify sensitive habitat areas and restrict construction activities;
- No equipment mobilization, grading, clearing, or storage of equipment or machinery, or similar activity shall occur at the project site until a qualified biologist has inspected and approved the wildlife exclusion fencing; and
- EBMUD shall ensure that the temporary fencing is continuously maintained until all construction is complete.

Roosting Bat Species

Common Roosting Bats. Bats and other non-game mammals are protected in California under the California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by

the California Fish and Game Commission. The following activities are prohibited and would be considered a significant impact: (1) destruction of an occupied, non-breeding bat roost, resulting in the death of bats; (2) disturbance that causes the loss of a maternity colony of bats (resulting in the death of young); or (3) destruction of hibernacula¹³ (although hibernacula are generally not formed by bat species in the Bay Area due to sufficiently high temperatures year-round). Maternity roosts are those that are occupied by pregnant females or females with non-flying young. Non-breeding roosts are day roosts without pregnant females or non-flying young.

No special status bats are known to occur in the Project's Study Areas (CDFW, 2018). Based on the site reconnaissance survey, no roosting habitat is present for common bat species at Site A4 or Staging Area 1 or 2. However, common bats could utilize the trees at Site A2 for roosting. Removing existing trees in support of Project construction could result in significant impacts to common roosting bats through direct mortality or indirect disturbance, such as increased noise, both of which are considered significant impacts. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, which includes the following provisions:

Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by the District of up to one-day for site supervisors, foreman and project managers, and up to 30-minutes for non-supervisory contractor personnel. The training program will be completed in person or by watching a video at an EBMUD-designated location, conducted by a qualified biologist provided by EBMUD. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including roosting bats, and the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to EBMUD.

- If construction commences between March 1 and July 31, during the bat maternity period, EBMUD will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction.
- If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by EBMUD will conduct focused day- and/or night-emergence surveys, as appropriate.

¹³ Hibernaculum refers to the winter quarters of a hibernating animal.

- If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, avoidance buffers shall be constructed. The buffer size will be determined by EBMUD in consultation with CDFW.
- If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safely evicted, under the direction of a qualified biologist provided by EBMUD in consultation with CDFW to ensure that the bats are not injured.
- If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.

Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, will be implemented as part of the Project, which addresses impacts to roosting bats and includes provisions for pre-construction roosting bat surveys, delineation of avoidance buffer zones, and roosting monitoring during construction. As such, the construction impact related to roosting bats would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language. Once operational, the Project security lighting would be shielded such that no light is directed off the site or into the sky, and would require one worker vehicle trip per week for operation and maintenance. Because the light would be shielded away from potential roosting habitat and the operation and maintenance of the pump station would not result in human intrusion to potential roosting habitat, operation-related impacts to common roosting bats would be less than significant. (**Less than Significant**)

Nesting Birds

Special-Status and Common Nesting Birds. The Migratory Bird Treaty Act (MBTA) and California Fish and Game Code protect raptors (Section 3503.5), most native migratory birds (Section 3513), and resident breeding birds (Section 3503) that may migrate through and/or nest in the Project Study Areas. Migratory and resident birds, which breed locally in Dougherty Valley, have the potential to nest in mature trees, grasslands, and ornamental landscaping within the Project's Study Areas. Common and special-status breeding birds that may nest in the Project's Study Areas could be adversely affected by Project construction through increased noise disturbance, tree removal, or visual disturbance.

Mature trees within the Dougherty Road Study Area and Crow Canyon Road Study Area provide suitable nesting habitat for Cooper's hawk (*Accipiter cooperii*), a state species of special concern; Swainson's hawk (*Buteo swainsoni*), a state threatened and federal Bird of Conservation Concern; Red-tailed hawk (*Buteo jamaicensis*), a state species of special concern, and common passerines and raptors. Lilac Ridge Road and Crow Canyon Road study areas provide ground nesting habitat for common birds, while Lilac Ridge Road provides ground nesting habitat for western burrowing owl (*Athene cunicularia*) in the grassland portions of the study area. As a result of Project construction, any nesting raptors within 250 feet and nesting passerine birds within 150 feet could be disrupted by Project construction activities. The displacement of actively nesting birds would constitute a significant impact.

The western burrowing owl is a state species of special concern and federal Bird of Conservation Concern. The nearest western burrowing owl occurrence documented in CNDDDB is located over two miles east of the proposed sites A2 and A4 (CDFW, 2017). Nesting western burrowing owls have a moderate potential to occur in the low non-native grasslands in the Lilac Ridge Road Study Area. Western burrowing owl burrow sites are found in low grasslands that are created by other mammals such as ground squirrels. The few mammal burrows identified during the site reconnaissance survey were either located within the Reservoir R200 site or in the tall grassland in the vicinity of the proposed Site A4. All other proposed Project sites do not display western burrowing owl nesting habitats due to lack of mammal burrows or suitable grassland habitat. Due to routine mowing of the grasslands at the Reservoir R200 site, which would be used as the Project's Staging Area 2, western burrowing owls are unlikely to have the opportunity to occupy and nest in burrows in this area due to the visual and noise disturbance caused by EBMUD operations. Although the grasslands in Site A4 could be used by foraging western burrowing owls, the tall height of the grass is not characteristic of that used for nesting habitat. Foraging western burrowing owls are not protected. The majority of the proposed Site A4 is not routinely mowed, only the margin bordering the access road. However, if western burrowing owls utilize mammal burrows located in low grassland habitat in the Lilac Ridge Road Study Area, Project construction, visual and noise disturbance could cause significant impacts to nesting sites if burrowing owl individuals abandon their nests.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, which includes the following provisions:

- Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by EBMUD of up to one-day for site supervisors, foreman and project managers, and up to

30-minutes for non-supervisory contractor personnel. The training program will be completed in person or by watching a video at an EBMUD-designated location, conducted by a qualified biologist provided by EBMUD. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including nesting birds, and the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to EBMUD.

- It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior.
- If construction commences between February 1 and August 31, during the nesting season, EBMUD will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction.
- If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by EBMUD in consultation with CDFW and is based on the nest location, topography, cover and species' tolerance to disturbance.
- If an avoidance buffer is not achievable, a qualified biologist provided by EBMUD will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies.

If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by EBMUD's biologist, would be necessary. Because Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, will be implemented as part of the Project, and includes provisions for pre-construction nesting bird surveys, delineation of avoidance buffer zones, and monitoring during construction, construction impacts related to special status and common nesting birds would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language. (**Less than Significant**)

- Once the Project is completed and operational, the construction easement at Site A2 would be restored similar to preconstruction conditions with the planting of native shrubs. The proposed outdoor security lighting would be installed with motion detectors and luminaire shields such that no light is directed off the site or into the sky. Permanent reduction in bird foraging habitat would not constitute a significant impact in consideration of comparable foraging habitat available in the vicinity. Because habitat would be restored and no light would be directed towards the site or sky, operational impacts to nesting birds would be considered less than significant. **(Less than Significant)**
- b) Both Site A2 and A4, as well as Staging Area 1 and Staging Area 2 lack riparian vegetation or other sensitive natural communities; therefore, the Project would not impact these communities. **(No Impact)**
- c) Staging Area 1 and Staging Area 2 do not contain protected wetlands. Site A2 is located less than 100 feet from the west branch of Alamo Creek, however, due to Site A2's distance from Alamo Creek, no impacts to this creek are anticipated. During the reconnaissance-level site visit, slight variations of non-native grasslands were observed in the vegetation within the proposed Site A4. However, the absence of wetland hydrology, wetland vegetation, or hydric soils indicate no presence of wetlands. Furthermore, aerial imagery displays construction-related earthwork disturbance at this location during the construction of DERWA's Reservoir R200 project. Directly southeast of the proposed Site A4 access road intersection with Lilac Ridge Road, an approximate 50 feet x 25 feet pool feature has historically been observed at this location, per *DERWA Tank R-200 Project Mitigated Negative Declaration – Issues Raised in Comments* (ESA, 2003). Since that document's publication, the pool is no longer present and active construction of a residential community is occurring at this location. Because no wetlands occur at Site A2 or Site A4, or within either staging area, the Project would not result in any impacts to wetlands. **(No Impact)**
- d) Project construction would not create a barrier to, or substantially interfere with, wildlife movements through the study areas or the greater Dougherty Valley. The small size and location of the potential pump station sites and staging areas make them unlikely to significantly impinge on animal movements. All trees impacted by the Project would be replaced, and 0.16 acres of grassland would be impacted at Site A2 and 0.5 acres of grasslands would be impacted at Site A4. The dense riparian habitat located 100 feet south of Site A2 surrounding the west branch of Alamo Creek, which provides cover for wildlife movement, would not be impacted. Human traffic from construction may have a temporary impact on animals dispersing or moving through the Project sites and staging areas, but this short-term impact would be less than significant, because wildlife movement impacts would be confined to work (daytime) hours, and the Project's potential pump station sites are in the vicinity of suitable habitat that would still remain available for wildlife movement during the construction and operation of the Project. After construction, the new Pump Station R3000 would be fenced to exclude wildlife, and wildlife movement could occur around the enclosed site.

- Therefore, the Project is not anticipated to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites due to the small footprint of the Project. **(No Impact)**
- e) Pursuant to California Government Code §53091, EBMUD, as a utility district serving a broad regional area, is not subject to building and land use zoning ordinances (e.g., tree ordinances) for projects involving facilities for the production, generation, storage, or transmission of water. However, it is the practice of EBMUD to work with local jurisdictions and neighboring communities during project planning, and to consider local environmental protection policies for guidance.

City of San Ramon General Plan 2035

Chapter 8 Open Space and Conservation of the General Plan, includes an open space action plan that creates a structure for implementation of the General Plan by establishing and strengthening partnerships and coordination with relevant groups and agencies, securing funding sources, and establishing preservation priorities (City of San Ramon, 2015). The following General Plan policies may be applicable to the Project:

8.1-G-1 Protect and maintain the quality of biological resources in the San Ramon Planning Area, while also balancing the needs of growth and development.

8.3-G-1 Acquire, preserve, and maintain open space and its natural resources for future generations.

8.3-G-2 Strengthen the City's partnership with East Bay Regional Parks District, Contra Costa County, other jurisdictions and private organizations to expand the ridgeline and hillside open space system in the City's Planning Area.

8.4-G-1 Expand the ridgeline and hillside open space system in the City's Planning Area by joint efforts with East Bay Regional Parks District, Contra Costa County and nonprofit trustee agencies.

The Project would not conflict with any of the applicable guiding policies of the General Plan listed above. Impact discussions a), b) and d) above detail how incorporation of several of EBMUD practices and procedures and mitigation measures into the Project would ensure that impacts to special-status species and wildlife habitats would be less than significant, with the implementation of mitigation measures in some circumstances. In regards to expanding the ridgeline and hillside open space system, the new pump station would be located on an area of approximately 5,500 square feet within an existing developed area of the City of San Ramon, and as discussed in Section 2.2.1, *Aesthetics*, of this Initial Study, the pump station would not obstruct views of a ridgeline.

Dougherty Valley Specific Plan

The Open Space and Conservation element of the Dougherty Valley Specific Plan establishes a system of open space which improves ecological values, provides recreational opportunities, enhances the character of the region and contributes to a high quality of life in and around Dougherty Valley.

The Project would not conflict with the Open Space and Conservation element of the Dougherty Valley Specific Plan because the Project would not directly interfere with the ecological value of West Alamo Creek or significantly affect the extensive open space system.

City of San Ramon Municipal Code

The City of San Ramon provides for the protection of trees in the Municipal Code Sections C4-31 through C4-40, and C6-46. The Municipal Code outlines permit requirements for tree-related work (removal, planting or pruning). The proposed Site A2 includes trees that may be considered protected in accordance with the San Ramon Municipal Code.

City of San Ramon Zoning Ordinance, Division D5, Chapter II – Tree Preservation and Protection

The City of San Ramon Zoning Ordinance, Division D5, Chapter II – Tree Preservation and Protection provides regulations for the protection, preservation, maintenance, and replacement of native oak trees, habitat values of oak woodlands, trees of historic or cultural significance, groves and stands of mature native trees; or mature trees and native habitat in general. The ordinance defines protected trees as follows:

- A native oak tree with a diameter of six or more inches as measured 54 inches above the ground;
- A heritage, or landmark tree or grove, or significant groves or stands of trees identified by City Council Resolution;
- A tree required to be planted, relocated, or preserved that is identified as a condition of approval for a Tree Removal Permit or other discretionary permit, and/or as environmental mitigation;
- A tree within 100 feet of a perennial stream, or within 50 feet of a seasonal stream that is six inches or more in diameter as measured at 54 inches above the ground; or
- Any other mature tree that is eight inches or more in diameter as measured at 54 inches above the ground that is not otherwise exempt.

Under this Ordinance, a tree removal permit would be required prior to: the relocation, removal, cutting-down, or other act that causes the destruction of a protected tree; the issuance of building or grading permits resulting in the removal of a protected tree; or the approval of a Development Plan, Use Permit, Minor

Use Permit, Variance, or subdivision map, hereafter referred to as "discretionary projects" resulting in the removal of a protected tree. The City may condition issuance of such permits on replacement of trees in kind as set forth in Section D5-10, Table 5-1. However, this Ordinance notes that the required number of replacement trees can be reduced if the subject site cannot adequately support the total number of required replacement trees. In addition, in the case where an approved tree replacement location is characterized as non-native habitat such as an incompatible ornamental landscape, urban development, and/or narrow roadway median, the replacement tree can be a non-native species.

As stated above, pursuant to California Government Code §53091, EBMUD, as a utility district serving a broad regional area, is not subject to building and land use zoning ordinances (e.g., tree ordinances) for projects involving facilities for the production, generation, storage, or transmission of water. However, as detailed in the Project Description, EBMUD has worked with the City of San Ramon during project planning to consider local environmental protection policies for guidance.

Existing trees to be retained at Site A2 and Staging Area 1 could be adversely affected by Project-related construction activities. Potential impacts to retained trees include: mechanical damage to tree trunks and canopies from inadvertent contact by construction equipment, vehicles or construction materials; root damage resulting from grading or excavation activities; or, root damage resulting from soil compaction caused by heavy equipment or vehicle traffic. These impacts to retained trees would conflict with City of San Ramon Zoning Ordinance and would constitute a significant impact. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification 01 35 44, Environmental Requirements, 3.7, Protection of Native and Non-native Protected Trees, which includes best practices for protecting trees that are not to be removed within the Project construction limits, including indicating tree protection on the construction drawings, pruning pursuant to Tree Pruning Guidelines of the International Society of Arboriculture, installation of exclusion fencing, exclusion of work or storage inside of the tree protection zone, and consulting with an arborist for pruning or tree replacement. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language. As such, impacts to retained trees during construction and operation of the Project are considered less than significant.

Up to thirteen trees (Live Oak, Valley Oak and Elm), ranging in size between four and eighteen inches' DBH, would be removed during pump station construction at Site A2, including two trees located within the temporary construction easement, and one tree within the landscape strip between the curb and the sidewalk. The construction easement has adequate room to support the replacement of the two trees that would be removed in this easement. No tree removal would be needed

for construction at Site A4, or use of either Staging Area 1 or Staging Area 2. Tree removal could conflict with City of San Ramon Zoning Ordinance, and if so, would constitute a significant impact. As detailed in the Project Description, however, Site A2 includes a landscape design consistent with the ARB review comments, that is based on the property's post-construction capacity to accommodate new trees. This landscape design includes planting of a mixture of tree species, including coast live oak, evergreen and Crape Myrtle within the pump station landscape areas and the temporary construction easement. In accordance with the City of San Ramon Zoning Ordinance for tree preservation, the proposed landscaping would accommodate as many trees in kind as is feasible¹⁴ and the remainder would match the existing tree landscaping along Dougherty Road. In addition, the construction easement at Site A2 would be restored with shrubbery. Site A4 includes a landscape design similar to Site A2 although no tree removal is required for Site A4. No operational tree-related impacts are expected to occur as a result of the Project. Because the landscape design for the Project maximizes the sites' post-construction capacity for new trees that would match the existing nearby landscaping, impacts resulting from tree removal during construction and operation of the Project are considered less than significant. **(Less than Significant)**

- f) West Alamo Creek, which is approximately 100 feet south of Site A2, is surrounded by a City of San Ramon designated Critical Wildlife Habitat. The Critical Wildlife Habitat area extends to approximately 50 feet south of proposed Site A2 construction activities. However, there is no critical habitat designated at Site A2. No habitat conservation plans, natural community conservation plan, or other approved conservation plans have been approved for lands that include the Project Study Areas. **(No Impact)**

References

- California Department of Fish and Wildlife (CDFW), *California Natural Diversity Database Summary Table Report for Antioch South, Clayton, Diablo, Dublin, Hayward, Las Trampas Ridge, Livermore, Tassajara, and Walnut Creek Quadrangles. Commercial Version*, April 18, 2018.
- California Native Plant Society (CNPS), Rare Plant Program, *Inventory of Rare and Endangered Plants* (online edition, v8-02). California Native Plant Society, Sacramento, CA. Available online at <http://www.rareplants.cnps.org>. Accessed on April 18, 2018.
- City of San Ramon, *City of San Ramon General Plan 2035*, adopted by the San Ramon City Council on April 28, 2015.
- City of San Ramon, *Zoning Ordinance, Division D5 - Resource Management*, Chapter II. Adopted October 27, 2015.

¹⁴ Per ESA's arborist and landscape architect, coast live oaks need approximately 40 feet of space between each tree.

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- Contra Costa County, *Dougherty Valley Specific Plan*, Contra Costa County, City of San Ramon, February 11, 2014.
- Dublin San Ramon Services District, East Bay Municipal Utility District Recycled Water Authority (DERWA), *Tank R-200, Recycled Water Program Environmental Checklist Form*, prepared for Dublin San Ramon Services District, East Bay Municipal Utility District Recycled Water Authority (DERWA), 2003.
- EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018. Environmental Science Associates (ESA), 2016, *SRVRWP Pump Station R3000 Project Site Reconnaissance Survey*, performed by Liz Hill, July 28, 2016.
- ESA, 2003. *DERWA Tank R-200 Project Mitigated Negative Declaration – Issues Raised in Comments*. Memorandum to Dublin San Ramon Services District/East Bay Municipal Utility District Recycled Water Authority. May 19, 2003.
- United States Fish and Wildlife Service (USFWS), 2018. *Official Species list for the EBMUD Pump Station R3000: Lilac Ridge Road Study Area, Crow Canyon Study Area, and Dougherty Road Study Area in San Ramon, CA*. April 2018.
- USFWS, 2016. Alameda whipsnake (*Masticophis lateralis euryxanthus*) Basic Species Information. Accessed online: https://www.fws.gov/sacramento/es_species/Accounts/Amphibians-Reptiles/es_alameda-whipsnake.htm. Last updated: September 16, 2016.
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2.2.5 Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Information in the following sections is based on background research and a surface reconnaissance conducted in August 2016 (Koenig, 2017). Once operational, the Project site would not include any ground disturbing activities that would result in the potential inadvertent discovery of archaeological resources or human remains, or the destruction of a unique paleontological resource or site or unique geologic feature. As there would be no ground disturbing activities during the operation of Pump Station R3000, the following discussion focuses on construction-related impacts.

a) **Site A2 and Site A4**

CEQA Guidelines Section 15064.5 requires the lead agency (EBMUD) to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register of Historical Resources (California Register), or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. This section discusses architectural resources; archaeological resources that are potential historical resources are discussed in Section b) below.

There are no architectural resources on Site A2, Site A4, or the staging areas. In addition, there are no known architectural resources potentially eligible for listing in the California Register (that meet the 45-year-old minimum age threshold for consideration), including buildings, structures, objects, or districts, immediately adjacent to Site A2, Site A4, or the staging areas. As there are no historical resources present, the Project would not cause a substantial adverse change in the significance of a historical resource. **(No Impact)**

b) **Site A2 and Site A4**

This section discusses archaeological resources, both as historical resources according to Section 15064.5 of the CEQA Guidelines as well as unique

archaeological resources as defined in Section 21083.2(g) of the CEQA Guidelines. A significant impact would occur if the Project would cause a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

EBMUD maintains an Archaeological Resources Geographic Information System (GIS) database that is updated annually with the results of a records search of the NWIC of the California Historical Resources Information System. A Project specific records search was completed utilizing the GIS database that included a 0.5-mile radius around the two alternative pump station locations in order to: (1) determine whether known cultural resources had been recorded within or adjacent to the Project sites; (2) assess the likelihood of unrecorded cultural resources based on historical references and the distribution of environmental settings; and (3) develop a context for identification and preliminary evaluation of cultural resources.

No prehistoric archaeological resources or historic-era sites eligible for inclusion in the California Register or eligible as a unique archaeological resource have been previously identified in or within a 0.5-mile radius of Site A2, Site A4, or the staging areas.

Staging Area 1 is an unpaved area adjacent to Crow Canyon Road that has been used as a staging area previously. Staging Area 2 is a paved area next to Reservoir R200. No cultural resources were identified at these locations and there is a very low sensitivity for buried or previously undiscovered archaeological resources.

An archaeological surface survey was completed to determine whether previously undocumented archaeological resources were located at either of the alternative pump station sites (Koenig, 2017). Site A2 is located on a steep (45 degree) slope. Landscaped trees and shrubs provided the vegetation. Bare areas provided moderate visibility (approximately 50 percent). Soil is light brown silty clay (classified as Diablo clay, 15 to 30 percent slopes). No cultural resources or other evidence of past human use was identified during the archaeological survey effort at Site A2, and Site A2 has a very low sensitivity for buried or previously undiscovered archaeological resources because of the existing environmental setting, slope, distance to natural resources, and scarcity of known archaeological sites in the vicinity.

Site A4 is located on a moderate to very steep (20 to 45 degree) slope. Non-native grassland habitat in undisturbed areas adjacent to the road and water tank area limited visibility (approximately 10 percent). Soil is light brown silty clay (classified as Diablo clay, 30 to 50 percent slopes). No cultural resources or other evidence of past human use was identified during the archaeological survey effort at Site A4, and Site A4 has a very low sensitivity for buried or previously undiscovered archaeological resources because of the existing environmental setting, slope, distance to natural resources, and scarcity of known archaeological sites in the vicinity.

Based on the results of the records search, surface survey, and the geologic context there is a low potential for the presence of subsurface prehistoric and historic-era archaeological deposits within Site A2, Site A4, or the staging areas. While unlikely, the inadvertent discovery of archaeological resources during construction cannot be entirely discounted, and disturbance of an archaeological resource could cause a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements, outlines the following procedures:

- Preconstruction cultural resources training is required for all construction personnel.
- In the event that a cultural or paleontological resource is identified during preconstruction activities or during excavation for construction activities, all work within 100 feet of the resource shall be halted until a qualified archaeologist can review, identify, and evaluate the resource for its significance. Should the archaeologist determine that an archaeological resource has the potential to be a tribal cultural resource, a Native American monitor shall be retained by EBMUD to monitor work in the area where the tribal cultural resource was discovered.

Because Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and it requires implementation of archaeological resources procedures that address the inadvertent discovery of archaeological resources and ensures compliance with legal requirements regarding the protection of such resources, the Project's construction impacts related to archaeological resources are less than significant. **(Less than Significant)**

c) **Site A2 and Site A4**

Both Sites A2 and A4, associated pipelines, and the staging areas are located within the rolling East Bay Hills adjacent to San Ramon Valley. The Project sites have no unique geologic features. Therefore, there is no impact related to destruction of a unique geologic feature.

As discussed below in Section 2.2.6, *Geology and Soils*, both Sites A2 and A4, associated pipelines, and the staging areas are located on a ridge underlain by overturned sedimentary strata of Green Valley and Tassajara formations which was deposited in the Miocene and Pliocene epochs of the Tertiary era. A search of the paleontological locality database of the University of California Museum of

Paleontology (UCMP) identified three ancestral horse fossil localities in Miocene-aged sediments at Blackhawk Ranch 3 approximately 4.5-mile north of the Project sites (UCMP, 2016). In addition, fossils at the Blackhawk Ranch include plants, skulls, long bones, teeth, tusks, ribs and foot bones of a great variety of animals including gomphotherium simpsoni (an ancestor of later mastodons and elephants), beavers, mice, squirrels, foxes, hayaenoid dogs, cats (including a saber-toothed variety), skinks, weasels, otters, horses, camels, rhinoceros, llamas, antelopes, salmon, turtles and cranes. Plants recovered include leaves of poplar, willow, oaks, elm, sycamore, mahogany and sumac. Further, Miocene and Pliocene age sediments have yielded numerous vertebrate fossils throughout Contra Costa County. In accordance with Society of Vertebrate Paleontology criteria for assigning paleontological potential ratings to rock units (SVP, 2010), the Miocene and Pliocene-aged Green Valley and Tassajara formations would have a high paleontological potential because vertebrate fossils have been recovered from similarly aged sediments within 5 miles of the Project sites.

Excavation during construction within Green Valley and Tassajara formations at either Sites A2, A4, or associated pipelines could potentially encounter paleontological resources. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements. However, because the Green Valley formation has a high paleontological sensitivity there is a high potential to encounter paleontological resources and this impact would be significant. Implementation of **Mitigation Measure CUL-1: Paleontological Resources Monitoring and Mitigation Program**, would reduce this impact to a less than significant level by requiring that excavation activities within the bedrock units at the Project site be monitored by a qualified paleontologist and that any substantial find be adequately curated. (**Less than Significant with Mitigation**)

Mitigation Measure CUL-1: Paleontological Resources Monitoring and Mitigation Program.

- a. A professional paleontologist shall provide sensitivity training to supervisory staff to alert construction workers to the possibility of exposing significant paleontological resources within the Project area. The training shall be conducted as defined by the Society of Vertebrate Paleontology's Conformable Impact Mitigation Guidelines Committee (1995), to recognize fossil materials in the event that any are uncovered during construction. This training shall be specific to paleontological resources and supplement the cultural resources training required by EBMUD specification 01 35 44, Environmental Requirements, Section 3.9, Protection of Cultural and Paleontological Resources.

- b. An “Alert Sheet” shall be posted in staging areas, such as in construction trailers, to alert personnel to the procedures and protocols to follow for the discovery of unique paleontological resources.
- c. During construction, earth-moving activities shall be monitored by a qualified paleontological consultant having expertise in California paleontology. In the event that a paleontological resource is uncovered during Project construction, all ground disturbing work within 100 feet shall be halted. A qualified paleontologist shall inspect the discovery and determine whether further investigation is required.
- d. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified paleontologist shall evaluate the resource and determine whether it is “unique” under CEQA, Appendix G, part V.
- e. If the resource is determined not to be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the paleontologist shall, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology (SVP) standards, and in consultation with EBMUD.
- f. Treatment would ensure that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified paleontologist. All recovered fossils shall be offered to be curated at an accredited and permanent scientific institution according to SVP standard guidelines for curation. Work may commence upon completion of treatment.

d) **Site A2 and Site A4**

There is no indication from the archival research that any parts of Site A2, Site A4, associated pipelines, or the staging areas have been used for human burial purposes in the recent or distant past. Therefore, it is unlikely that human remains would be encountered during construction of the Project. However, the possibility of inadvertent discovery cannot be entirely discounted, and could result in a potentially significant impact. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements. Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements and outlines procedures in regards to the discovery of human remains:

- Discovery of human remains requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the

discovery. EBMUD shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to EBMUD for the appropriate means of treating the human remains and any associated funerary objects.

Because EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, Section 3.9, Protection of Cultural and Paleontological Resources requires implementation of procedures that address the inadvertent discovery of human remains and follows statutory law; the Project's impact related to disturbance of human remains is less than significant. **(Less than Significant)**

References

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

Koenig, Heidi, *East Bay Municipal Utility District, R3000 Pump Station, San Ramon Valley Recycled Water Program, Contra Costa County, Phase I Cultural Resources Survey Report*. Prepared for East Bay Municipal Utility District, June 2017.

Society of Vertebrate Paleontology (SVP), *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, 2010.

University of California Museum of Paleontology, *UCMP Specimen Search*. Available online at <http://ucmpdb.berkeley.edu/>. Accessed on July 21, 2016.

2.2.6 Geology, Soils, and Seismicity

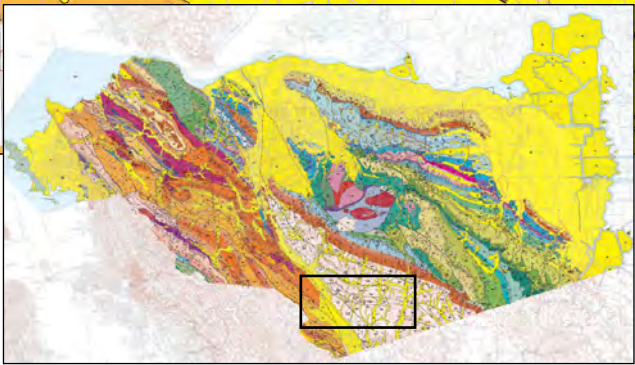
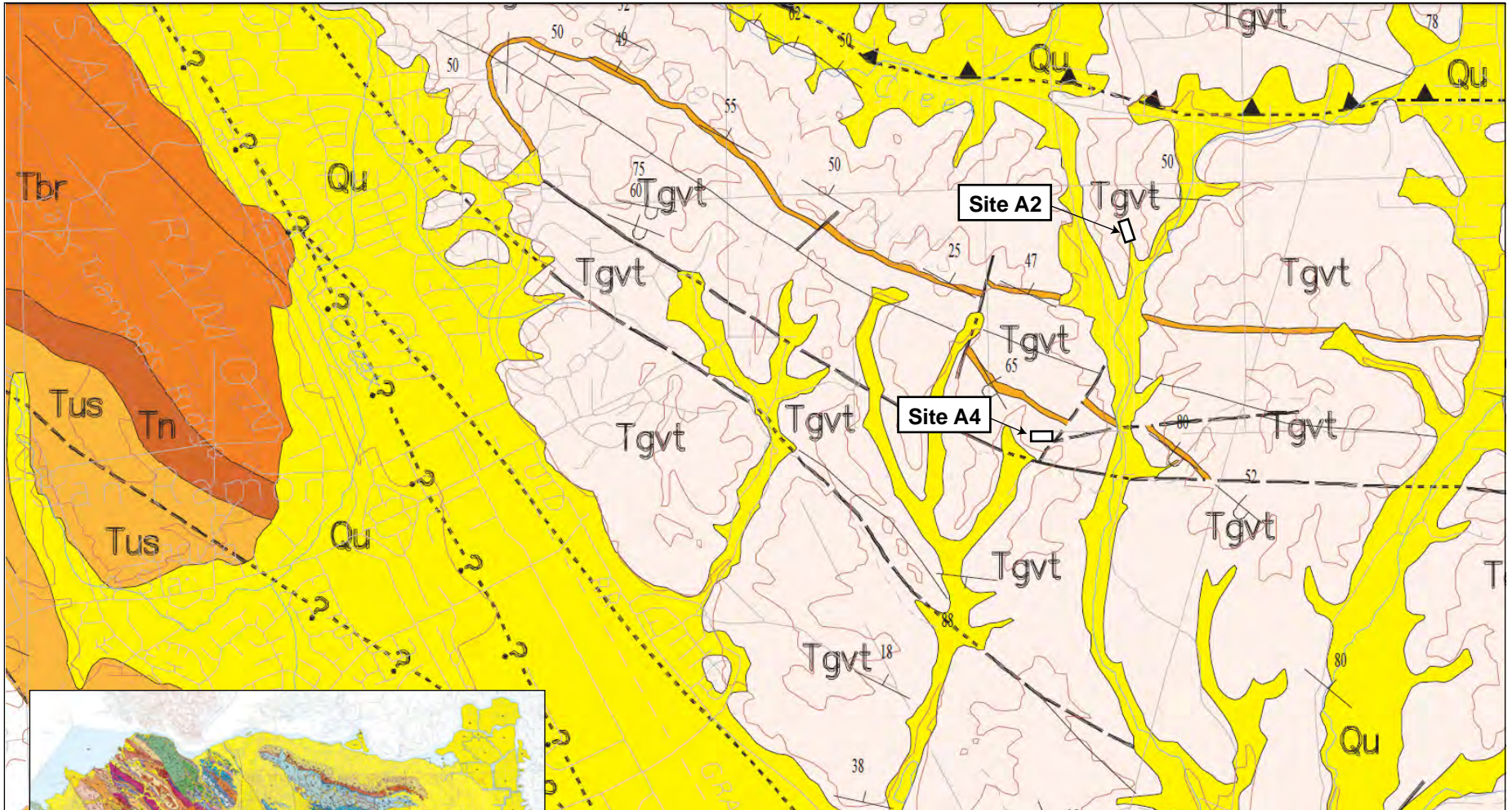
<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
6. GEOLOGY and Soils —				
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Section 1803.5.3 of the Building Code, creating substantial risks to life or property? ¹⁵	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Sites A2, Site A4, associated pipelines, and the staging areas are south of Mt. Diablo, on the north end of the Diablo Range, within the Coast Range province. Mt. Diablo developed over the last several million years as a core of Franciscan age rocks that was pushed up into younger sedimentary rocks. Since that uplift, rivers have eroded channels into the underlying bedrock, and deposited alluvial sediment in valleys.

The proposed sites are located on a ridge underlain by overturned sedimentary strata of Green Valley and Tassajara Formations as shown on Figure 8 (USGS, 1994). These formations were deposited in the Miocene and Pliocene epochs of the Tertiary era. Regionally, the sedimentary rocks of the Green Valley and Tassajara Formations consist of poorly consolidated beds of sandstone, siltstone, and conglomerate with interbedded volcanic ash and tuff layers, all of which are continental in origin. The rock units are faulted and folded, and in some locations overturned.

¹⁵ The California Building Code, based on the International Building Code and the now defunct Uniform Building Code, no longer includes a Table 18-1-B. Instead, Section 1803.5.3 of the CBC describes the criteria for analyzing expansive soils.



- Qu:** Surficial deposits, undivided (Pleistocene and Holocene)
- Tgvt:** Green Valley and Tassajara Formations (Miocene and Pliocene)
- Tus:** Unnamed sedimentary and volcanic rocks (Miocene and Pliocene)
- Tn:** Neroly Sandstone (Miocene)
- Tbr:** Briones Formation (Miocene)



SOURCE: USGS, Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County, California, Compiled by R.W. Graymer, D.L. Jones, and E.E. Brabb, 1994.

Figure 8
Geologic Hazards Map

EBMUD conducted a geologic hazard assessment of Sites A2 and A4 and concluded that both sites are suitable for the construction of a pump station from a geotechnical standpoint (EBMUD, 2016). The assessment states that a geotechnical investigation consisting of test pits and/or test borings should be conducted at the time of design, and the recommendations of the geotechnical report should be incorporated into the design assumptions for the Project, including earthwork activities, retaining wall design, and foundation design.

a.i) **Setting**

Surface fault rupture occurs when movement on a fault deep within the earth breaks through to the surface. Fault rupture almost always follows preexisting faults, which are zones of relative weakness in the earth's crust, and can cause substantial damage to structures located where rupture occurs.

Impacts Site A2 and Site A4

Neither Site A2, A4, their associated pipelines, or either staging area are within an Alquist-Priolo Earthquake Fault Zone as established by the California Geological Survey (CDMG, 1982). Further, no known active¹⁶ faults cross the Project sites or staging areas, or their immediate vicinities (CGS, 2010). While the trace of the Sherburne Hills fault is near both sites, this is a late Quaternary fault that has not exhibited fault displacement in the last 11,000 years and it is not considered an active fault. Therefore, the potential for surface fault rupture from construction or operation of the Project at both Sites A2 and A4, and either staging area is low, and impacts related to fault rupture would be less than significant for both sites and staging areas. (**Less than Significant**)

a.ii) **Setting**

Like the rest of the San Francisco Bay Area, both Sites A2 and A4, their pipelines, and both staging areas would be subject to ground shaking in the event of a major earthquake on one of the regional faults. The intensity of seismic shaking, or strong ground motion, at the sites would depend on the distance between the site and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the site. Earthquakes occurring on faults closest to the Project sites or staging areas would most likely generate the largest ground motions.

The closest active fault to the Project sites and staging areas is the Calaveras fault located approximately 2.8 miles to the west. The Mount Diablo Thrust fault is considered potentially active and is located to the northeast of the Project sites and staging areas. Both of these faults are capable of producing very strong ground shaking at the Project sites or staging areas (ABAG, 2016). Other active faults in the region that may cause strong ground shaking at the Project sites or staging areas

¹⁶ An active fault is one that shows geologic evidence of movement within Holocene time (approximately the last 11,000 years).

are the San Andreas Fault, Hayward-Rodgers Creek Fault, Concord-Green Valley, and Greenville faults.

The USGS estimates that it is nearly certain that a magnitude (Mw) 6.7¹⁷ or higher earthquake would occur on one of the California regional faults over the next 30-years, with a 72 percent likelihood in the San Francisco Region (USGS, 2015). The USGS considers the Hayward-Rodgers Creek and Calaveras faults to be particularly ready to rupture. The likelihood of a Mw 6.7 or higher earthquake occurring on these faults over the next 30 years is 14.3 percent and 7.4 percent, respectively. The northern segment of the San Andreas fault is considered less likely to rupture partly because of the relatively recent 1906 earthquake on that fault. The likelihood of a Mw 6.7 or higher earthquake occurring on this fault over the next 30 years is 6.4 percent.

Impacts Site A2 and Site A4

Neither Site A2 nor Site A4, associated pipelines, or the staging areas are crossed by an active fault so the potential for fault rupture is low. Both Sites A2 and A4, the associated pipelines, and the staging areas could experience strong to very strong ground shaking in the event of an earthquake on one of the regional faults. However, the Project would be constructed according to current engineering standards including the California Building Code, American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) Standard 7-16 “Minimum Design Loads for Buildings and Other Structures,” and other standard design guidelines, which would serve to limit damage as a result of seismic ground shaking. These standards provide definitions of seismic sources that could produce ground shaking at the Project sites, specify the procedures to calculate seismic forces on structures during the expected ground shaking, and specify construction standards to withstand the calculated forces. Compliance with these standards would be enforced through EBMUD’s Engineering Standard Practice 550.1, Seismic Design Requirements and 512.1, Water Main and Services Design Criteria which specify the requirements for determining the potential degree of ground shaking at a project site and require that pump stations, underground structures, pipelines, and other similar types of structures are designed to withstand the estimated amount of ground shaking. The design must meet the requirements of applicable building codes at a minimum.

Incorporation into the Project of the appropriate engineering and design features, and EBMUD’s Engineering Standard Practice 550.1, Seismic Design Requirements and 512.1, Water Main and Services Design Criteria, would ensure that the Project would be able to withstand the calculated seismic forces at either

¹⁷ An earthquake is classified by the amount of energy released, expressed as the magnitude of the earthquake. Traditionally, magnitudes have been quantified using the Richter scale. However, seismologists now use a moment magnitude (Mw) scale because it provides a more accurate measurement of the size of major and great earthquakes. Earthquake magnitude is a logarithmic measure of earthquake size. In simple terms, this means that at the same distance from the earthquake, the shaking will be 10 times as large during a Mw 5 earthquake as during a Mw 4 earthquake. The total amount of energy released by the earthquake, however, goes up by a factor of 32. Depending on their location, earthquakes with a magnitude of 7 and greater are capable of causing large amounts of damage.

Site A2 or A4, and would also ensure that the pump station and pipelines would not be substantially damaged in the event of a major earthquake. Therefore, impacts related to fault rupture and ground shaking would be less than significant for both sites. (**Less than Significant**)

a.iii) **Setting**

Liquefaction is a phenomenon in which saturated granular sediments temporarily lose their shear strength in response to an applied stress, usually earthquake-induced ground shaking. Lateral spreading is the lateral movement of gently to steeply sloping, saturated soil deposits that is caused by earthquake-induced liquefaction. The susceptibility of a site to liquefaction and lateral spreading is a function of the depth, density, and water content of the granular sediments, as well as the magnitude of an earthquake. Saturated, unconsolidated silts, sands, silty sands, and gravels within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include vertical settlement from densification, lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects. The soils most susceptible to liquefaction and other sources of seismic-related ground failure such as lateral spreading, are clean, loose, uniformly graded, saturated, fine-grained soils that occur close to the ground surface, usually at depths of less than 50 feet.

Impacts Site A2 and Site A4

As shown on Figure 8, Sites A2 and A4 are underlain by bedrock of the Green Valley and Tassajara Formations, which consist of poorly consolidated beds of sandstone, siltstone, and conglomerate with interbedded volcanic ash and tuff layers. The USGS has estimated that this bedrock has a very low liquefaction susceptibility (USGS, 2006). Further, Site A2 and Site A4 are not located in an area of liquefaction potential identified by the California Department of Conservation under the Seismic Hazards Mapping Act of 1990 (CGS, 2016). For these reasons, there is a low potential for liquefaction and other sources of seismic-related ground failure such as lateral spreading, and impacts related to liquefaction would be less than significant for both sites. (**Less than Significant**)

a.iv) **Setting**

Earthquake motions can also induce substantial stresses in slopes, causing earthquake-induced landslides or ground cracking when the slope fails. Earthquake-induced landslides can occur in areas with steep slopes that are susceptible to strong ground motion during an earthquake. The 1989 Loma Prieta earthquake triggered thousands of landslides over an area of 770 square miles (USGS, 1998).

Impacts Site A2 and Site A4

Neither Site A2, A4, associated pipelines, and staging areas are located near any areas of mapped earthquake-induced landslide susceptibility identified by the California Department of Conservation under the Seismic Hazards Mapping Act of 1990 (CGS, 2016). Therefore, the potential for earthquake-induced landslides

is low, and impacts related to earthquake induced landslides would be less than significant for both sites. (**Less than Significant**)

b) **Site A2 and Site A4**

Excavation for the pump station and connection pipeline would disturb approximately 0.16 acres at Site A2 and 0.5 acres at Site A4. During construction, exposed soil from stockpiles and excavated areas could be eroded by wind or stormwater if not properly managed. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Standard Construction Specification Section 01 35 44. Section 1.1.B, Site Activities and Section 1.3.A, Storm Water Management, of this standard specification, would require the construction contractor to implement erosion control measures in accordance with a Stormwater Pollution Prevention Plan. The plan would describe measures to prevent erosion within the construction site and the runoff of sediment-laden stormwater from the construction site. The specifications would require the contractor to divert or otherwise control surface water and other waters flowing onto the work area. The contractor would also be required to maintain the construction site in a manner that ensures that drainage from the site would minimize erosion of stockpiled or stored materials and minimize erosion of the adjacent native soil. With implementation of EBMUD Standard Construction Specifications Section 01 35 44 (Sections 1.1.B and 1.3.A), there would not be substantial erosion during construction, and impacts related to erosion would be less than significant during construction. (**Less than Significant**)

Once constructed, the new pump station at either site would include approximately 0.1 acre of new impervious surfaces, and increased runoff from these surfaces would have the potential to cause off-site erosion. However, as discussed below in Section 2.2.9, *Hydrology and Water Quality*, stormwater runoff from either pump station site would be directed to the City of San Ramon storm drain system and would not runoff from the Project site to surrounding areas. As a result, the Project would not cause erosion and impacts related to erosion during operation would be less than significant for both sites. (**Less than Significant**)

Both Sites A2 and A4 are located in open space areas that have never been developed as discussed below in Section 2.2.8, *Hazardous Materials*. Therefore, it is likely that there could be a well-developed top soil horizon at each site. Construction of Pump Station R3000 could remove some of this top soil. However, the pump station and associated facilities would only involve construction within an area of up to approximately 5,500 square feet (0.1 acre), and the removal of top soil would be minimal, and impacts related to top soil loss would be less than significant. (**Less than Significant**)

c) **Setting**

As described in Item a.iii, above, liquefaction is a phenomenon in which saturated granular sediments temporarily lose their shear strength in response to an applied stress, usually earthquake-induced ground shaking. Lateral spreading is the lateral movement of gently to steeply sloping, saturated soil deposits that is caused by earthquake-induced liquefaction. Subsidence is a lowering of the ground surface that can result from both liquefaction and lateral spreading.

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, triggered either by static (i.e., gravity) or dynamic (i.e., earthquake) forces. Exposed rock slopes undergo rockfalls, rockslides, or rock avalanches, while soil slopes experience soil slumps, rapid debris flows, and deep-seated rotational slides. Slope stability can depend on several complex variables, including the geology, structure, topography, slope geometry, and amount of groundwater present, as well as external processes such as climate and human activity. The factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase the stresses on the slope. Excavation at the base of a slope can decrease the resistance of slope materials to sliding.

Landslides can occur on slopes of 15 percent or less, but the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges. Landslides typically occur within slide-prone geologic units that contain excessive amounts of water or are located on steep slopes, or where planes of weakness are parallel to the slope angle.

The best available predictor of where slides and earth flows might occur is the distribution of past movements (Nilsen and Turner, 1975). In 1997, the USGS released a preliminary map and GIS database that provides a summary of the distribution of landslides evident in the landscape of the San Francisco Bay region (USGS, 1997). The map is a digitized nine-county compilation of existing landslides that has been used to divide the area into four landslide prevalence zones. Site A2 is located in an area mapped as “Many Landslides” which is defined by the USGS as areas with mapped landslides and intervening areas of more than 1,500 feet. Site A4 is located in an area mapped as “Few Landslides.” This classification is defined by the USGS as containing few, if any, large mapped landslides but locally containing scattered small landslides and questionably identified larger landslides. Both sites are immediately downhill of areas mapped as “Mostly Landslides,” defined as areas with mapped landslides, including intervening areas typically narrower than 1,500 feet, and narrow borders around landslides. Figure 9-1 of the Safety Element of the General Plan indicates that bedrock at both Sites A2 and A4 has a low potential for landslides.

Impacts Site A2 and Site A4

Liquefaction, Lateral Spreading, and Subsidence

As discussed in Impact a.iii, the potential for liquefaction at both Sites A2 and A4 is low because both sites are underlain by consolidated bedrock of the Green Valley and Tassajara Formations. Therefore, the potential for lateral spreading and subsidence, potential consequences of liquefaction, is also low. Impacts related to liquefaction, lateral spreading, and subsidence would be less than significant for both sites. (**Less than Significant**)

Landslides

As discussed above, Site A2 is located in an area of landslide susceptibility and both Sites A2 and A4 are located immediately downhill of areas of high susceptibility to landslides. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD Engineering Standard Practice 550.1, Seismic Design Requirements, which includes the following specific requirements for construction in landslide areas.

“Steel pipe having restrained joints shall be used. Other pipe materials and joints may be used provided it is demonstrated by tests and/or calculations that the pipe can accommodate the ground movements without rupture. Isolation valves shall be provided at points where the pipeline enters a slide area. Bypass connections or hydrants may be used to permit post-earthquake connection of temporary hoses across the slide area.”

Other measures specified in EBMUD Engineering Standard Practice 550.1 include:

- a) Setting the line back far enough from the up slope side of unstable slopes as to avoid being included in the probable zone of slippage;
- b) Setting lines back far enough from or low enough below the toe of unstable slopes as to avoid being included in the probable zone of slippage; and
- c) Providing buttress or retention structures or other measures to stabilize the slope.

The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language. Accordingly, the proposed design at both Sites A2 and A4 includes retaining walls along the upslope site boundary to maintain stability of the existing slopes. However, excavation into the hillside at either site could destabilize the existing slopes, which could lead to significant impacts. During the Project’s design phase, EBMUD would perform a design-level geotechnical investigation to identify the potential for geologic hazards. As detailed in the Project Description, EBMUD’s Pumping Plant Design Guide specifies minimum requirements to be followed in the design of pumping plants.

The Pumping Plant Design Guide requires preparation of a geotechnical investigation, and EBMUD would incorporate the recommendations outlined in the geotechnical investigation into the Project design.

With incorporation of the results and recommendations of the geotechnical investigation of the pump station site into construction and design requirements, impacts resulting from landslides would be less than significant. (**Less than Significant**)

Collapse

Settlement, and possibly collapse could occur during construction of the pump station if the excavation walls were not adequately supported, which could cause a significant impact. However, as discussed above, the site specific geotechnical investigation required by the Pumping Plant Design Guide would include recommendations for addressing collapse. Implementation of the recommendations of the geotechnical investigation, such as sloping the excavation sidewalls or supporting them by conventional shoring methods such as soldier piles and lagging, would prevent the excavation sidewalls from becoming unstable or collapsing. Impacts related to collapse would be less than significant. (**Less than Significant**)

d) **Setting**

Problematic soils, such as those that are expansive, can damage buried utilities and increase maintenance requirements. Expansive soils are characterized by their ability to undergo significant volume change (i.e., to shrink and swell) as a result of variations in moisture content. Changes in soil moisture can result from rainfall, landscape irrigation, utility leakage, roof drainage, and/or perched groundwater.¹⁸ Expansive soils are typically very fine-grained and have a high to very high percentage of clay. Expansion and contraction of expansive soils in response to changes in moisture content can lead to differential and cyclical movements that can cause damage and/or distress to structures and equipment.

The soils underlying Site A2 consist of Diablo Clay. Two soil types underlie Site A4: Diablo Clay and Clear Lake Clay (USDA NRCS, 2016). The underlying bedrock is composed of semi-consolidated deposits that would not be considered expansive.

Impacts Site A2 and Site A4

Expansive soils can damage building foundations and pipelines when they shrink and swell in response to moisture changes. Because the expansiveness of the clays underlying Sites A2 and A4 has not been evaluated, there could be potentially significant impacts at both sites. However, the geotechnical investigation conducted in accordance with the Pumping Plant Design Guide would evaluate the expansiveness of the site soils, and would include recommendations for the proposed structures and pipelines to be resilient to expansive soil. EBMUD would

¹⁸ Perched groundwater is a local saturated zone above the water table that typically exists above an impervious layer (such as clay) of limited extent.

- design the foundation of the proposed pump station in accordance with the recommendations of the geotechnical report which would ensure compliance with the provisions for expansive soil provided in Section 1808.6 of the California Building Code. These provisions specify that foundations constructed within expansive soil must be designed to prevent uplift of the structure, and to withstand forces exerted on foundation due to soil volume changes. Alternatively, expansive soil may be removed and replaced with engineered fill that is not expansive as would occur for pipeline construction. Impacts related to construction within expansive soils would be less than significant. (**Less than Significant**)
- e) **Site A2 and Site A4.** The Project would not include restrooms or other facilities that would produce wastewater, and would not use septic tanks or alternate on-site wastewater disposal systems. (**No Impact**)

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2.2.7 Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a) **Setting**

Gases that trap heat in the atmosphere are referred to as Greenhouse Gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, similar to a greenhouse. The most abundant GHGs in the earth's atmosphere are carbon dioxide (CO₂), methane (CH₄) and Nitrous Oxide (N₂O). The accumulation of GHGs has been implicated as a driving force for Global Climate Change. Definitions of climate change vary between and across regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and the impact of human activities that alter the composition of the global atmosphere. Both natural processes and human activities emit GHGs. Global Climate Change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, larger forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

Impacts Site A2 and Site A4

An analysis of the Project using the May 2011 BAAQMD CEQA Guidelines and Thresholds was conducted. Both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate. Therefore, the evaluation of GHG emissions impacts evaluates whether the Project would make a considerable contribution to cumulative climate change effects.

For land use development projects, the threshold is compliance with a qualified GHG Reduction Strategy (BAAQMD CEQA Air Quality Guidelines, Section 4.3); or annual emissions less than 1,100 metric tons per year (MT/year) of carbon dioxide equivalent (CO_{2e}); or 4.6 MT CO_{2e}/SP/year (residents + employees). Land use development projects include residential, commercial, industrial, and public land uses and facilities.

Construction GHG Emissions

Construction activities would generate GHGs. The CalEEMod model run for the estimation of construction emissions from Sites A2 and A4 (see Section 2.2.2, *Air Quality*) also calculated the GHG emissions that would be generated by construction activities of the Project. For Site A2, construction-related emissions would total approximately 1,494 metric tons of CO₂ equivalents (CO₂e) during the entirety of the construction period. BAAQMD does not have adopted thresholds of significance for construction-related GHG emissions. Therefore, the South Coast Air Quality Management District's (SCAQMD) recommendations have been used to evaluate Project construction emissions. Because impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively small portion of the overall lifetime project GHG emissions. In addition, GHG emission reduction measures for construction equipment are relatively limited. Therefore, SCAQMD recommends that construction emissions be amortized over the project lifetime, so that GHG reduction measures would address construction GHG emissions as part of the operational GHG reduction strategies (SCAQMD, 2008). Per the SCAQMD's recommendation, annualized over an assumed Project life of 40 years, construction-related GHG emissions for Site A2 would be approximately 37.3 metric tons per year of CO₂e. For Site A4, construction-related emissions would total approximately 1,756 metric tons of CO₂e over the entire construction period. Annualized over an assumed Project life of 40 years, construction-related GHG emissions for Site A4 would be approximately 43.9 metric tons per year of CO₂e. These emissions are factored along with the operational GHG emissions calculation below to determine significance.

Though the BAAQMD does not have adopted thresholds of significance for construction-related GHG emissions, it encourages lead agencies to incorporate BMPs to reduce GHG emissions during construction, as feasible and applicable. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. EBMUD's Standard Construction Specification 01 35 44 requires that the construction crews implement practices and procedures to reduce greenhouse gas emissions from fuel combustion including maintaining on-road and off-road vehicle tire pressures to manufacturer specifications, and maintaining construction equipment engines to manufacturer's specifications, using alternative-fueled construction equipment and recycling demolition debris for reuse to the extent feasible, as detailed below.

- The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available.
- The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards.

- Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required.
- Contractor shall implement standard air emissions controls such as:
 - Minimize the use of diesel generators where possible.
 - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points.
 - Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines.
 - Locate generators at least 100 feet away from adjacent homes and ball fields.
 - Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment.
- Contractor shall implement the following measures to reduce GHG emissions from fuel combustion:
 - On-road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
 - Construction equipment engines shall be maintained to manufacturer specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
 - Demolition debris shall be recycled for reuse to the extent feasible (excluding wood treated with preservatives).

Because Section 3.4A, Air Quality and Emissions Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project and includes measures to reduce GHG emissions from fuel combustion, the Project construction impacts related to GHG emissions would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A) lists the applicable standard specifications language. **(Less than Significant)**

Operational GHG Emissions

The Project would include three 350 horsepower vertical turbine pumps that would be operated primarily during the off-peak nighttime hours. Assuming 12 hours of operation per day, the annual electricity demand of the Project would be about 3,429 MWh. Indirect GHG emissions that would be generated by the Project's use of electricity from PG&E's electrical grid were estimated using an emission factor of 457 pounds of CO₂ per MWh which was developed by PG&E as the average of PG&E's historical emissions from 2009 to 2013 (PG&E, 2015). PG&E does not provide emissions for CH₄ or N₂O from electricity generation. Therefore, the regional power pool emission factors supplied by US EPA eGRID that represent the average emissions rate of electric generators supplying power to the grid in the region were used to estimate CH₄ and N₂O emissions (USEPA, 2015). Total GHG emissions in the form of CO₂e were calculated by multiplying the N₂O and CH₄ emissions by their respective global warming potential, and then adding the CO₂, N₂O, and CH₄ emissions. Indirect emissions resulting from the Project-related electricity demand from PG&E's power grid of approximately 3,429 MWh per year is estimated to be about 739 metric tons (MT) of CO₂e. When construction and operational GHG emissions are factored together, annual GHG emissions for Sites A2 and A4 would be about 777 and 783 MT per year of CO₂e, respectively. Compared to the threshold of 1,100 MT CO₂e per year, GHG emissions associated with both Sites A2 and A4 would be less than the BAAQMD threshold resulting in a less than significant impact. (**Less than Significant**)

b) **Setting**

EBMUD prepared a Climate Change Monitoring and Response Plan and an Action Plan (2014) to guide decisions related to water supply and quality, infrastructure planning, and mitigation of greenhouse gas emissions. EBMUD's goal is to reduce GHG emissions 50 percent by 2040 (as compared to year 2000). In 2013, GHG emissions generated by EBMUD were 31,244 MT of CO₂e which was 31 percent below 2000 GHG emission levels (EBMUD 2014).

The City of San Ramon adopted the San Ramon Climate Action Plan to address climate change locally and to comply with the GHG reduction targets associated with Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006 (City of San Ramon, 2011). Although the City's Climate Action Plan is not applicable to EBMUD¹⁹, discussion of the City's Climate Action Plan is included herein as documentation of City plans and policies. The Climate Action Plan strategy is primarily based upon the land use, transportation, and conservation policies that are part of the General Plan. The Climate Action Plan demonstrates that through land use planning/density choices, reduction in vehicle miles traveled, and energy conservation measures such as increased energy efficiency for buildings, more efficient water use and recycling programs, the City can do its

¹⁹ Pursuant to Government Code Section 53091(d) and (e), EBMUD is not subject to the building and zoning ordinances of local jurisdictions for projects involving the transmission of water. Nonetheless, EBMUD strives to consider the regulations and ordinances of local jurisdictions during construction, where feasible and not contrary to its public purpose and responsibilities.

proportionate share to achieve the State GHG reduction targets. The Climate Action Plan has been determined to be “Qualified Greenhouse Gas Reduction Strategy” as defined by the BAAQMD guidelines. As such, it serves as a guidance document for local decision makers and staff to ensure that future actions and land use decisions are also consistent with State and local GHG reduction goals as they relate to climate change and the CEQA.

Impacts Site A2 and Site A4

In its 2014 Climate Change Monitoring and Response Plan, EBMUD developed many adaptation strategies to address climate change (EBMUD, 2014). The 2014 Climate Change Monitoring and Response Plan’s recommended adaptation approach to climate change is to adjust EBMUD’s water supply portfolio as the impacts of climate change manifest. Currently, the EBMUD Board of Directors has identified an approach that relies on water conservation and recycling programs to further reduce demand and lessen impacts on supplies adversely affected by climate change. As described in Section 1.2 (in Section 1, *Project Description*), the objective of the Project is to enhance delivery of recycled water consistent with EBMUD goals and policies related to recycled water. Consequently, the Project is considered consistent with EBMUD’s 2014 Climate Change Monitoring and Response Plan.

The San Ramon Climate Action Plan includes strategies to achieve water efficiency improvements consistent with the State’s 20-percent reduction target by 2020 through the implementation of the State’s Model Water Efficient Landscape Ordinance (MWELo) that would achieve a 20-percent reduction in water used for landscaping, and expansion of the use of recycled water for landscaping. A 20-percent reduction in water use would result in a 20-percent reduction in energy use and GHG emissions generated from transporting and treating water. The Project is part of the DERWA SRVRWP which when fully implemented would increase recycled water use by more than 300 percent. The Project would also be consistent with Policy 8.6-I-5 of the Open Space and Conservation Element of the General Plan which requires the City to collaborate with EBMUD to expand the recycled water distribution system in an efficient and timely manner (San Ramon, 2015). Therefore, the Project would be consistent with the policies and programs in both the General Plan as well as the San Ramon CAP and the impact would be less than significant. (**Less than Significant**)

References

- BAAQMD, 2017. *BAAQMD CEQA Air Quality Guidelines*, adopted June 2, 2010, revised May 2017.
- City of San Ramon, 2011. *San Ramon Climate Action Plan*, August 23, 2011.
- City of San Ramon, 2015. *General Plan 2035, Section 8 – Open Space and Conservation*, May 28, 2015.

EBMUD, 2014. *2014 Climate Change and Monitoring Response Plan*, September 2014.

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

PG&E, 2015. *Greenhouse Gas Emission Factors: Guidance for PG&E Customers*, November, 2015. Available at https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

SCAQMD, Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, October 2008. Available at [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgattachmente.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf).

USEPA, 2015. *eGRID2012 Annual Emission Output Rates*. Available at http://www.epa.gov/sites/production/files/2015/documents/egrid2012_ghgoutputrates_0.pdf

2.2.8 Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
8. HAZARDS AND HAZARDOUS MATERIALS —				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a, b) Site A2 and Site A4

With the exception of small amounts of fuels, lubricants, and solvents that would be brought to the pump station at either Site A2 or Site A4 in EBMUD trucks for maintenance purposes, operation of Pump Station R3000 would not involve the routine use of any hazardous materials. No hazardous materials would be permanently stored at the pump station at either Site A2 or Site A4. Therefore, impacts related to the routine use, storage, transport, disposal, or accidental release or spill of hazardous materials would be less than significant. (**Less than Significant**)

During construction at either Site A2 or Site A4, and use of either staging area, some hazardous materials such as fuels, petroleum lubricants, adhesives, solvents, and paints would be used during the temporary construction period and diesel fuel

could be stored to fuel the construction equipment. The hazardous materials could be released during routine use or accidental spills. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specifications Section 01 35 44, Environmental Requirements. Section 1.1.B, Site Activities, of this specification would require the contractor to implement specific measures for the management of hazardous materials during construction. These measures include:

- Prevent the discharge of asphalt, rubbish, paint, oil or petroleum products, cement and concrete or washings thereof. These materials may also not be stored where they can be washed outside of the construction limits by rainfall or runoff. When construction is completed, these materials must be disposed of in accordance with the Construction and Demolition Waste Disposal Plan.
- Clean up spills immediately, and notify EBMUD in the event of a spill.
- Equip stationary equipment such as motors, pumps, and generators with drip pans.
- Handle, store, apply, and dispose of any chemical or hazardous material in accordance with federal, state, and local laws and regulations.

To further address hazardous materials spills, the contractor must submit a Spill Prevention and Response Plan to EBMUD detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas in accordance with EBMUD's Standard Construction Specifications Section 01 35 44, Environmental Requirements, Section 1.3.D, Spill Prevention and Response Plan. The plan must include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that would be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the EBMUD Engineer and appropriate agencies; spill-related worker, public health, and safety issues; spill control; and spill cleanup. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language.

In addition, the vendors and contractors responsible for delivery of hazardous materials would comply with the regulations of the California Highway Patrol and the California Department of Transportation related to the transportation of hazardous materials during construction which would ensure the safe transport of these materials.

Implementation of regulations of the California Highway Patrol and the California Department of Transportation pertaining to the transport of hazardous materials and the requirements specified in EBMUD's Standard Construction Specifications Section 01 35 44, which require the contractor to implement measures for the

management of hazardous materials during construction, including prevention of spills, would ensure that construction impacts related the routine use, storage, transport, disposal, or accidental release or spill of hazardous materials during construction would be less than significant. (**Less than Significant**)

- c) For projects located within one-fourth mile of a school that involve construction or alteration of a facility that may emit hazardous air emissions or handle extremely hazardous materials, Section 15186 of the CEQA Guidelines requires the lead agency to consult with the affected school district and notify it of the project at least 30 days prior to adoption of certification of the CEQA document for the project, if the project might reasonably be anticipated to emit hazardous air emissions, or that would handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified in subdivision (j) of Section 25532 of the Health and Safety code, that may impose a health or safety hazard to persons who would attend or would be employed at the school.

Site A2

Site A2 is not located within one-fourth mile of a school, therefore there would be no impact related to this topic for Site A2. (**No Impact**)

Site A4

Site A4 is located within approximately 0.2 miles of Coyote Creek Elementary School. However, no hazardous materials would be permanently stored at the pump station site. With the exception of small amounts of fuels, lubricants, and solvents that would be brought to the pump station in EBMUD trucks for maintenance purposes, operation of Pump Station R3000 would not involve the use of any hazardous or acutely hazardous materials substances, or wastes, or emit hazardous emissions. While diesel particulate matter, a Toxic Air Contaminant, would be emitted during construction, the impacts of these emissions would be less than significant, as described above in Section 2.2.3, *Air Quality*. As described in the Project Description, there would be no pipeline construction activity for the pipeline associated with Site A4 on North Gale Ridge Road during the normal school year for Coyote Creek Elementary School. Because construction of the pipeline would take place outside of the school year and operation of the pump station would not involve hazardous materials, the Project would not be anticipated to emit hazardous air emissions or include hazardous substances in a quantity equal to or greater than the state threshold. Therefore, the Project would not be expected to impose a health or safety hazard to persons who would attend or would be employed at the school and EBMUD would not be anticipated to consult with the school district regarding the Project. Impacts would be less than significant. (**Less than Significant**)

- d) **Setting**

Review of aerial photographs of Sites A2 and A4 between 1939 and 2012 indicates that these sites have never been developed (EDR, 2016a).

Environmental Data Resources conducted an environmental database to determine if Sites A2 and A4 or either staging area is included on a government list of hazardous materials sites, or if there are other sites in the vicinity that could potentially affect soil or groundwater quality at the Project sites (EDR, 2016b). Neither site nor staging area is listed in any of the government lists searched. The only site within one-quarter mile of the Project sites is a historic auto station, almost one-quarter mile to the northwest of Site A2 which does not have documented soil or groundwater contamination. The environmental database review did not identify any hazardous materials sites along either pipeline alignment.

Impacts Site A2 and Site A4

Because the Project sites have not been previously developed, are not identified on a government list of hazardous materials sites, and there are no identified hazardous materials sites in close proximity to either site or staging area or the pipeline alignments, the potential to encounter hazardous materials in the soil or groundwater during construction is low and impacts related to construction on a listed site would be less than significant. **(Less than Significant)**

Operation of Pump Station R3000 would not involve soil disturbance for any reason, other than possible maintenance activities. If maintenance were required, the potential to encounter hazardous materials would be low and the impact would be less than significant. **(Less than Significant)**

e, f) **Site A2 and Site A4**

The nearest public airport is the Livermore Municipal Airport located approximately nine miles to the southeast of Sites A2 and A4, and there are no private airstrips in the vicinity of either site. Therefore, there would be no impact related to these topics for either site. **(No Impact)**

g) **Setting**

The San Ramon Emergency Operations Plan (City of San Ramon, 2009) addresses planned response to extraordinary emergency situations associated with natural disasters, technological (human caused) emergencies, and war emergency operations in, or affecting, the City of San Ramon. The plan describes the City of San Ramon's Emergency Management Organization; policies, responsibilities, and procedures for public safety; operational concepts and procedures associated with field response to emergencies; and the organizational framework for implementing emergency systems in the city. The plan does not include designated emergency evacuation routes.

Impacts Site A2 and Site A4

The Project could impede implementation of the Emergency Operations Plan if it increased traffic or altered the street system in a manner that could interfere with emergency vehicular access. As discussed in Section 2.2.16, *Transportation and Traffic*, the Project would not result in a substantial increase in traffic during

construction. Proposed pipeline construction in Lilac Ridge Road, North Gale Ridge Road and Dougherty Road would involve temporary lane closures during construction. The construction of the pump station at Site A2 would also require a temporary lane closure in Dougherty Road. However, these closures would not impede emergency vehicular access because, as discussed further in Section 2.2.16, *Transportation and Traffic*, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation. This specification would require implementation of a Traffic Control Plan that shall include a description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included as well. For complete road closures, immediate access for emergency response vehicles would be provided at all times. With implementation of these traffic control measures, in accordance with EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, impacts related to interference with an emergency response plan would be less than significant during construction. **(Less than Significant)**

As discussed in Section 2.2.16, *Transportation and Traffic*, operation of Pump Station R3000 at either Site A2 or A4 would not substantially increase truck traffic in the Project area and would not involve any road closures or alteration of street alignments. Therefore, operation of the Project would not interfere with an adopted emergency response plan or emergency evacuation and this impact would be less than significant during operation. **(Less than Significant)**

h) **Setting**

The Project area's Mediterranean climate is characterized by long, dry, hot summers and cool, rainy winters. Most measurable rainfall occurs from mid-October to mid-April and in most years, this rainfall results in abundant grass growth. May to October is the main fire season, and July is the time of highest fire danger. In that period, the grasses dry and provide a fuel source for fires, with fire conditions exacerbated by warm air temperatures and the lack of precipitation.

Both Sites A2 and A4 are located in open space areas near residential neighborhoods. The sites are mapped in an area of moderate fire severity hazards as shown on Figure 9-3 of the Safety Element of the General Plan. Because of an extended dry season with low humidity, San Ramon has many days where fire danger is critical. Fire protection services in the City of San Ramon are provided by the San Ramon Valley Fire Protection District. There are two hydrants located near the Project sites to provide water for firefighting purposes; one approximately 150 feet north of Site A2 on the on west side of Dougherty Road, and one approximately 350 feet southeast of Site A4 on the corner of Laurelspur Loop and Lilac Ridge Road.

The California Public Resources Code and California Code of Regulations include requirements for construction activities within high fire hazard areas, as

further described below. In addition, the San Ramon Valley Fire Protection District has established an Exterior Hazard Abatement Program for the management of fire risks at built out sites which are also described further below.

Impacts Site A2 and Site A4

The use of construction equipment and temporary onsite and offsite storage of diesel fuel during construction at either Site A2 or A4 would pose a wildfire risk, a potentially significant impact. The time of the greatest fire danger is during the clearing phase, when workers and machines are working in vegetated areas that can be highly flammable. If piled onsite, the cleared dry vegetation could also become a fire fuel. Potential sources of ignition include equipment with internal combustion engines, gasoline-powered tools, and equipment or tools that produce a spark, fire, or flame. Such sources include sparks from blades or other metal parts scraping against rock, overheated brakes on wheeled equipment, heated emissions-control devices or vehicles, friction from worn or unaligned belts and drive chains, and burned-out bearings or bushings. Sparking as a result of scraping against rock is difficult to prevent. The other hazards result primarily from poor maintenance of the equipment. Smoking by construction personnel is also a potential source of ignition during construction.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specifications Section 01 35 24, Project Safety Requirements. Section 1.6, Fire Prevention and Protection, of this specification mandates that the site would be supplied and maintained with adequate firefighting equipment capable of extinguishing incipient fires. All work would comply with applicable federal, local, and state fire-prevention regulations, including, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241). Equipment including a long-handled, round-point shovel, or a fire extinguisher shall be kept at an accessible (unlocked) location on the construction site at all times. Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor and all equipment shall be maintained to ensure proper functioning of spark arrestor. For any work occurring between April 1 and December 1, or any other periods during which a high fire danger has been identified, this specification includes measures for equipment use within the vicinity of flammable materials. This specification also includes measures for vegetation management and creation of a defensible space around the construction site, as well as clearance at access drives. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language.

Because Section 1.6, Fire Prevention and Protection, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project and mandates that the site would be supplied and maintained with adequate firefighting equipment capable of extinguishing

incipient fires and complies with applicable fire code regulations and include provisions for fuel management, defensible space, access for firefighting, and portable fire extinguishers, the Project construction impacts related to hazards resulting from wildland fires is less than significant. (**Less than Significant**)

Once constructed, the new facilities at either site could provide a source of fuel for wildfires during operation of Pump Station R3000 if surrounding vegetation is not appropriately managed. However, as part of EBMUD's Standard Construction Specifications Section 01 35 24, Project Safety Requirements Section 1.6, Fire Prevention and Protection, the site would include a defensible space, as well as would be supplied and maintained with firefighting equipment. This defensible space would be maintained throughout the year and for the entirety of operations.

Because the sites are located in moderate fire severity hazards and Section 1.6, Fire Prevention and Protection, of EBMUD's Standard Construction Specification 01 35 24, Project Safety Requirements, has been incorporated into the Project, the Project operational impacts related to hazards resulting from wildland fires is less than significant. (**Less than Significant**)

References

City of San Ramon, Emergency Operations Plan, March 2009.

EBMUD, Standard Construction Specification, Section 01 35 24, Project Safety Requirements, November 23, 2017.

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

EBMUD, Standard Construction Specification, Section 01 55 26, Traffic Regulation, February 9, 2017.

Environmental Data Resources, *The EDR Aerial Photo Decade Package*, EBMUD Pump Station R3000, San Ramon, CA 94582, Inquiry No. 4692139.5, August 4, 2016a.

Environmental Data Resources, *The EDR Radius Map Report™ with Geocheck®*, EBMUD Pump Station R3000, San Ramon, CA 94582, Inquiry No. 4692139.2s, August 4, 2016b.

2.2.9 Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
9. HYDROLOGY AND WATER QUALITY —				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a, f) Setting

Both Sites A2 and A4, as well as the staging areas, are located in open space areas served by the City of San Ramon storm drain system. Both sites are in the Upper Alameda Creek watershed (Contra Costa Clean Water Program, 2004). The west branch of Alamo Creek parallels the east side of Dougherty Road, across the road from Site A2. West Alamo Creek crosses Dougherty Road in a culvert, and resurfaces approximately 100 feet south of Site A2. Alamo Creek is not listed as an impaired water body (SWRCB, 2010).

Impacts Site A2 and Site A4

Excavation for construction of the pump station and connection pipelines would disturb an area of approximately 0.16 acres at Site A2 and approximately 0.5 acres at Site A4. Exposed soil from stockpiles and excavated areas could be transported by wind or stormwater and, if not properly managed, could accumulate in storm drains. The accumulated soil could increase the sediment load (turbidity) in the stormwater runoff as well as reduce the flood carrying capacity of the storm drains. In addition, construction activities that would use hazardous materials such as fuels, petroleum lubricants, adhesives, solvents, and paints which, if not managed appropriately, could become mobilized by run-off. Temporary storage of construction materials and equipment in work areas and staging areas also creates the potential for a release of hazardous materials or sediment to the storm drain system.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specifications Section 01 35 44, Environmental Requirements. Section 1.1.B, Site Activities, of this specification would require the contractor to implement specific measures to control construction-related erosion and sedimentation and the discharge of pollutants in stormwater runoff. These measures include:

- Prevent the discharge of debris, soil, silt, sand, and any other organic or earthen materials to a surface water or storm drain system. Discharges of asphalt, rubbish, paint, oil or petroleum products, cement and concrete or washings thereof are also prohibited. These materials may also not be stored where they can be washed outside of the construction limits by rainfall or runoff. When construction is completed, these materials must be disposed of in accordance with the Construction and Demolition Waste Disposal Plan.
- Prevent creation of a nuisance pollution as defined in the California Water Code, and may not cause a violation of water quality standards for receiving waters adopted by the Regional Water Quality Control Board (RWQCB) or State Water Resources Control Board (SWRCB).
- Clean up spills immediately, and notify EBMUD in the event of a spill.
- Equip stationary equipment such as motors, pumps, and generators with drip pans.
- Divert or otherwise control surface water and other waters flowing onto the work areas. The methods of diversions or control must be adequate to ensure the safety of stored materials and personnel in the work area. At the completion of work, ditches, dikes, and other ground alterations made by the contractor must be removed and ground conditions must be returned to their former condition.

- Maintain construction sites to ensure that drainage from the site will minimize erosion of stockpiled or stored materials and the adjacent native soil material.
- Conduct dust control measures in a manner to prevent runoff from the site.
- Handle, store, apply, and dispose of any chemical or hazardous material in accordance with federal, state, and local laws and regulations.

EBMUD's Standard Construction Specifications Section 01 35 44, Environmental Requirements, Section 1.3.A, Storm Water Management also requires contractors to submit a Stormwater Pollution Prevention Plan (SWPPP) to EBMUD and the RWQCB for coverage under the state Construction General Permit that describes measures to prevent the runoff of polluted stormwater from the construction site. Pollutants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH of less than 6.5 or greater than 8.5, chlorine residual, and all other pollutants known to exist at the project site.

To further address hazardous materials spills, the contractor must submit a Spill Prevention and Response Plan to EBMUD detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas in accordance with EBMUD's Standard Construction Specifications Section 01 35 44, Environmental Requirements, Section 1.3.D, Spill Prevention and Response Plan. The plan must include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that would be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the EBMUD Engineer and appropriate agencies; spill-related worker, public health, and safety issues; spill control; and spill cleanup. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language.

Implementation of the measures specified in EBMUD's Standard Construction Specifications Section 01 35 44, including Section 1.1.B, Site Activities, Section 1.3.A, Storm Water Management, and Section 1.3.D, Spill Prevention and Response Plan, which require which require the contractor to implement measures for the management of stormwater runoff during construction, including the prevention of discharge of pollutants in stormwater runoff, and prevention of spills would ensure that water quality impacts related to soil erosion and use of hazardous materials during construction would be less than significant. **(Less than Significant)**

Other than stormwater runoff which is discussed below under Item e, operation of Pump Station R3000 would not include discharges of recycled water, potable water, or other discharges that could exceed water quality criteria or otherwise degrade water quality and the impact would be less than significant. **(Less than Significant)**

b) **Site A2 and Site A4**

Construction of Pump Station R3000 would not require any excavation dewatering, and operation of the pump station would not use groundwater for any purposes. The new pump station at Site A2 would create approximately 5,500 square feet of new impervious surfaces and the new pump station at Site A4 would create approximately 5,000 square feet of new impervious surfaces. This small increase would not substantially interfere with groundwater recharge and the impact would be less than significant. **(Less than Significant)**

c, d) **Site A2 and Site A4**

Both Sites A2 and A4 are in the Upper Alameda Creek watershed. Neither Site A2 nor A4 are located within an existing drainage. The nearest drainage to either Project site is the west branch of Alamo Creek, which parallels the east side of Dougherty Road, across the road from Site A2. West Alamo Creek crosses Dougherty Road in a culvert, and resurfaces approximately 100 feet south of Site A2.

During construction, short-term alterations in drainage patterns at both sites may occur. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. As described in Impact Discussion a) above, Standard Construction Specification 01 35 44 includes Section 1.3.A, which requires submittal of an SWPPP, and Section 1.1.B, which requires implementation of specific measures to control construction-related erosion and sedimentation. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language. Because Section 1.3.A, Storm Water Management, and Section 1.1.B, Site Activities, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project, and the required SWPPP and specific measures require controls regarding stormwater runoff from the Project site, short-term Project impacts related to alteration of the existing drainage pattern of the site area during construction, in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site would be less than significant. **(Less than Significant)**

The new pump station at Site A2 would create approximately 5,500 square feet of new impervious surfaces and the new pump station at Site A4 would create approximately 5,000 square feet of new impervious surfaces. As discussed in the Project Description, runoff from both sites would drain into the existing storm drain system. Stormwater runoff at either site would be allowed to infiltrate over the new landscaping and existing pervious surfaces surrounding the sites. Drainage would divert stormwater runoff ultimately to the same existing natural drainage pathways that conveyed stormwater runoff before construction and into

the existing drainage system. Therefore, there would be no alteration of the existing drainage pattern of the site area in a manner which would: a) result in substantial erosion or siltation on or off site, or b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site. Operational impacts would be less than significant. **(Less than Significant)**

e) **Setting**

Urban stormwater runoff, such as runoff that would occur from Pump Station R3000, can contain many types of pollutants, including polynuclear aromatic hydrocarbons from vehicle emissions; heavy metals such as copper from brake pad wear and zinc from tire wear; dioxins as products of combustion; and mercury resulting from atmospheric deposition. These materials and others can be deposited on paved surfaces and rooftops as fine airborne particles, thus causing stormwater runoff pollution that is unrelated to the particular activity or land use.

The Municipal Regional Stormwater Permit issued by the RWQCB (Order No. R2-2015-0049) addresses stormwater runoff from development projects in Contra Costa County as well as four other counties and two cities. Provision C.3 of this permit requires development projects to address pollutants in stormwater runoff and to prevent increases in runoff flows from new development and redevelopment projects. To meet the permit requirements, development projects that create 10,000 square feet or more of impervious surfaces must incorporate Low Impact Design (LID) features such as source control, site design, and stormwater treatment measures into their project design. For projects that do not meet this threshold, the permit encourages municipalities to enforce similar requirements.

Impacts Site A2 and Site A4

During construction at either site, short-term creation or contribution of runoff water could occur which would provide substantial additional sources of polluted runoff. As described in Impact Discussion a, f) above, Standard Construction Specification 01 35 44 includes: Section 1.1.B which requires specific measures to control construction-related erosion and sedimentation and the discharge of pollutants in stormwater runoff, Section 1.3.A which requires submittal of a SWPPP, and Section 1.3.D which requires a Spill Prevention and Response Plan. These incorporated components of Specification 01 35 44 would ensure that runoff from the Project would not contribute substantial additional sources of polluted runoff.

Because EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and the practices achieve controls to prevent the discharge of contaminated stormwater runoff from the Project site, and prevent the accidental release of hazardous materials during Project construction, the Project construction impacts related to creation or contribution of runoff water which would provide substantial additional sources of polluted runoff would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial

Study/Mitigated Negative Declaration) lists the applicable standard specifications language. (**Less than Significant**)

The new pump station at Site A2 would create approximately 5,500 square feet of new impervious surfaces and the new pump station at Site A4 would create approximately 5,000 square feet of new impervious surfaces. Because the amount of new impervious surfaces at either site would be less than 10,000 square feet, Pump Station R3000 would not be subject to Provision C.3 of the Municipal Regional Stormwater Permit at either site. As discussed in the Project Description, runoff from both sites would drain into the existing storm drain system. Runoff from Site A2 would drain into a new pipeline at the southeast corner of the site that would connect into an existing 36-inch storm drain line north of the site that runs perpendicular to Dougherty Road. Runoff from Site A4 would drain into a new pipeline that would then connect into the existing storm drain system for Reservoir R200. The Project would also include new landscaping in the unpaved area of both sites. Stormwater runoff at either site would be allowed to infiltrate over the new landscaping and existing pervious surfaces surrounding the sites. Drainage would divert stormwater runoff ultimately to the same existing natural drainage pathways that conveyed stormwater runoff before construction and into the existing drainage system. Also, operation of Pump Station R3000 would not include long-term storage of potential pollutants or serve as long-term parking. For these reasons, there would be no creation or contribution of runoff water which would: a) exceed the capacity of existing or planned stormwater drainage systems, or b) provide substantial additional sources of polluted runoff. The impact would be less than significant. (**Less than Significant**)

g, h) **Site A2 and Site A4**

The Project does not include the construction of housing. While Site A2 is located adjacent to 100-year flood zone associated with Alamo Creek, neither Site A2 nor A4 is located within a 100-year flood zone (FEMA, 2009). (**No Impact**)

i) **Site A2 and Site A4**

Neither Site A2 nor A4 are located within a dam inundation zone (ArcGIS, 2015). EBMUD's Reservoir R200 is located uphill of Site A4 and while this site could be inundated in the event that the tank failed, the likelihood of tank rupture is low because the Reservoir R200 was designed in accordance with EBMUD's Reservoir Design Guide, which details design criteria and conditions for above- and below-ground water reservoirs and outlines applicable codes and design standards. Complete and sudden failure of the pump station and associated pipelines due to an earthquake or other condition is extremely unlikely due to the application of standard EBMUD practices, procedures and current engineering standards for construction that dictate engineering requirements for water facilities and seismic design. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Engineering Standard Practice

550.1, Seismic Design Requirements which dictates design standards for facilities to withstand seismic hazards. Further, even if Pump Station R3000 were to be inundated, it would pump only recycled water for irrigation purposes, and would not be critical to any life-safety operations that would be required in the event of a regional emergency. In addition, the connection pipeline would be constructed below ground and would not be vulnerable to flooding hazards. The pump station also would not house any human occupants. Because the new pump station and associated pipelines would be built in compliance with EBMUD standard practices and current engineering practices and building codes, the potential for exposure of people or structures to significant risk of loss, injury or death involving flooding is less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language. (**Less than Significant**)

j) **Site A2 and Site A4**

Tsunamis (seismic sea waves) are long-period waves that are typically caused by underwater seismic disturbances, volcanic eruptions, or submerged landslides. Seiches are standing waves that can form on confined bodies of water such as reservoirs and lakes in the event of an earthquake. Both Sites A2 and A4 are located at an elevation of 550 feet or higher, approximately 15 miles inland from the San Francisco Bay shoreline; therefore, there would be no risk associated with tsunamis which are large sea waves. Neither Site A2 nor A4 is located in the vicinity of any confined water bodies and would not be subject to a seiche; therefore, there is no impact. Neither Site A2 nor A4 is not located near a volcano or other geologic feature capable of producing mudflows; therefore, there is no impact. (**No Impact**)

References

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EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

Federal Emergency Management Agency (FEMA), FEMA Map Service Center: Search by Address. *Flood Insurance Rate Map No. 0613C0466F*, Effective June 16, 2009. Available online at <https://msc.fema.gov/portal/search#searchresultsanchor>. Accessed on August 10, 2016.

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2.2.10 Land Use and Land Use Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
10. LAND USE AND LAND USE PLANNING —				
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

Site A2

Site A2 is currently owned by the City of San Ramon and located adjacent to Dougherty Road, a 50 MPH six lane roadway. Nearby land uses include residences located approximately 150 feet to the west and 300 feet to the east. In terms of planning designations, the site is zoned RM-Medium Density Residential by the San Ramon Zoning Ordinance, and the General Plan designation is Multi-Family High Density Residential developments, with densities between 14 to 30 dwelling units per acre (San Ramon, 2015). Site A2 is within the City’s Urban Growth Boundary (UGB). The purpose of the UGB is to limit the extent to which urban development and services are provided as well as to serve as a tool to preserve open space, protect natural and scenic resources, encourage infill development, and encourage the efficient development of municipal services such as sewer and water for a specific period of time.

Site A4

Site A4 is currently owned by DERWA and is part of the property containing the Reservoir R200 facility. Nearby existing land uses in addition to Reservoir R200 include open space, and two residential subdivisions: Bridges at Gale Ranch, approximately 350 feet to the south of the site; and the Capella at Gale Ranch located at Laurels spur Loop, approximately 170 feet to the east of the site. In terms of planning designations, Site A4 is zoned Open Space by the San Ramon Zoning Ordinance and designated in the General Plan as Open Space for Natural State and Passive Recreation (San Ramon, 2015). Site A4 also is within the City of San Ramon’s UGB.

a) **Site A2 and Site A4**

Construction of Pump Station R3000 and associated pipelines at either Site A2 or A4 would not result in the physical division or isolation of any established community because of the nature of the Project and proposed locations. Site A2 is located on the west side of Dougherty Road and given its size and location, construction of Pump Station R3000 would not result in the division of any

established communities in the area. Site A4 is located on a hillside above an established community, but would not divide or isolate any this established community because there are none currently located on the hillside next to the site. **(No Impact)**

- b) Regarding land use plans and policies, the General Plan and zoning designations of the City of San Ramon for Sites A2 and A4 are presented above; there are no other land use plans in effect in the vicinity of the Project sites. The Project does not conflict with any applicable land use plan, policy, or regulation. Pursuant to Government Code Section 53091(d) and (e), EBMUD is not subject to the building and zoning ordinances of local jurisdictions for projects involving the transmission of water. Nonetheless, EBMUD strives to consider the regulations and ordinances of local jurisdictions during construction, where feasible and not contrary to its public purpose and responsibilities. Although not applicable pursuant to the exemptions found in Section 53091, the Project is consistent with San Ramon's General Plan and zoning code. The City of San Ramon Zoning Code Section D2-4 - Exemptions from Land Use Permit Requirements, Part B7 states that, "*the erection, construction, alteration, or maintenance by a public utility or public agency of utilities intended to service existing or nearby approved developments shall be permitted in any zone.*"

Site A2 and Site A4 are also located within the City of San Ramon's UGB. As noted above, part of the purpose of the City of San Ramon's UGB is to encourage the efficient development of municipal services such as sewer and water. The construction of Pump Station R3000 at either Site A2 or A4 would be consistent with this purpose by enhancing the provision of recycled water to areas served only by EBMUD.

Site A2

As described above, the City of San Ramon Zoning Code allows construction of a public utility intended to service existing or nearby approved developments in any zoning designation. Because the Project includes the construction of a recycled water pump station to serve areas in the City of San Ramon, the Project is consistent with the current designation for Site A2. As stated above, the General Plan designation for Site A2 is Multi-Family High Density Residential developments. The land adjacent to Site A2 is developed with residential homes and Dougherty Road, and construction of Pump Station R3000 would not change or conflict with these existing land uses. The southern boundary of Site A2 also abuts an open space recreational area. Site A2 is located on a landscape maintained parcel (APN 217-430-097) associated with the adjacent residential development. The proposed footprint for Site A2 would occupy less than a quarter of an acre of this landscaped area, preserving the landscaping and adjacent open space to the extent possible, and not depriving the opportunity for future residential development.

Site A4

As described above, the City of San Ramon Zoning Code allows construction of a public utility intended to service existing or nearby approved developments in any zoning designation. Because the Project includes the construction of a recycled water pump station to serve areas in the City of San Ramon, the Project would be allowed within the current designation for Site A4. Site A4 is located on land that is designated by the General Plan as Open Space for Natural State and Passive Recreation. DERWA currently owns the land where Pump Station R3000 would be constructed at Site A4 adjacent to Reservoir R200 (APN 222-240-031); Site A4 is located adjacent to the access road for the existing Reservoir R200, and construction of Pump Station R3000 at Site A4 would be consistent with the existing land uses for Reservoir R200. The proposed footprint for Site A4 would occupy less than a quarter of an acre of this open space area, preserving the open space to the extent possible, and not depriving the opportunity for use of the open space facilities, including the northern portion of the City of San Ramon's West Alamo Creek Trail, which is a 10-foot-wide earthen trail that is used for hiking and biking throughout the Dougherty Hills.

Because the Project would not preclude the use of lands consistent with the City of San Ramon's General Plan and zoning code, and is consistent with the purpose of the UGB, it would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. **(No Impact)**

c) Site A2 and Site A4

West Alamo Creek, which is approximately 100 feet south of Site A2, is surrounded by a City of San Ramon designated Critical Wildlife Habitat. The Critical Wildlife Habitat area extends to approximately 50 feet south of proposed Site A2 construction activities. However, there is no critical habitat designated at Site A2. No habitat conservation plans, natural community conservation plan, or other approved conservation plans have been approved for lands that include either Site A2 or Site A4 (USFWS, 2016). **(No Impact)**

References

The City of San Ramon, *San Ramon General Plan 2035*, Open Space Element, adopted by the City Council April 28 2015. Available online at <http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm>. Accessed on August 15, 2016.

The City of San Ramon, *San Ramon Zoning Map*, August 13, 2015.

United States Department of Fish and Wildlife, Environmental Conservation Online System, *Habitat Conservation Plans, Region 8*. Available online at <http://ecos.fws.gov/ecp0/conservationPlan/region/summary?region=8&type=HCP>. Accessed on September 8, 2016.

2.2.11 Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a, b) **Site A2 and Site A4**

According to the United States Geological Survey (USGS), there are no known mineral resources located in the Project vicinity that would be of value to the region and the residents of the state at either of the potential Project site locations. The General Plan did not identify any locally-important mineral resource recovery sites at the either of the potential Project site locations. **(No Impact)**

References

The City of San Ramon, *San Ramon General Plan 2035*, adopted by the City Council April 28 2015. Available online at <http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm>. Accessed on August 15, 2016.

United States Department of the Interior, United States Geological Survey, *Mineral Resources On-Line Spatial Data Interactive Map*, October 23, 2015. Available online at <http://mrdata.usgs.gov/general/map.html>. Accessed on August 16, 2016.

2.2.12 Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
12. NOISE — Would the project result in:				
a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Technical Background and Noise Terminology

Noise can be generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear’s decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements.

Noise exposure is a measure of noise over a period of time. Noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment.

Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual receptor. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts.

This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

- L_{eq}:** the energy-equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
- L_{max}:** the instantaneous maximum noise level for a specified period of time.
- L₅₀:** the noise level that is equaled or exceeded 50 percent of the specified time period. The L₅₀ represents the median sound level.
- L₉₀:** the noise level that is equaled or exceeded 90 percent of the specific time period. This is considered the background noise level during a given time period.
- DNL:** The day-night noise level (DNL; also referred to as L_{dn}) or the energy average of the A-weighted sound levels occurring during a 24-hour period and which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (“penalizing” nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.
- CNEL:** Similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 5-dBA “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

Discussion

The Project does not introduce any new noise sensitive land uses and the following discussion focusses on the Project’s potential to result in noise impacts on existing sensitive receptors, which include residences located within the vicinity of the two potential sites. Applicable noise regulations, the location of sensitive receptors with respect to proposed facilities and the existing ambient noise levels at the two proposed pump station sites are provided below.

The General Plan contains guidelines for determining the compatibility of various land uses with different noise environments (San Ramon, 2015). For residential uses, an exterior noise environment of up to 60 dBA DNL or CNEL is considered “normally acceptable” while a noise environment between 60 to 70 dBA DNL or CNEL is considered “conditionally acceptable”. Construction activities are exempt from these land use/noise compatibility standards, but must implement all practical noise attenuation measures and practices to limit adverse impacts on nearby land uses (San Ramon, 2015).

For the purpose of noise analyses, the General Plan considers a project to result in a significant increase in ambient noise level if:

- The ambient noise level is less than 60 dB DNL and the project increases noise levels by five dB or more.
- The ambient noise level is 60-65 dB DNL and the project increases noise levels by three dB or more.
- The ambient noise level is greater than 65 dB DNL and the project increases noise levels by 1.5 dB or more.

These thresholds are applicable to the permanent noise increase in ambient levels from the operation of the Project, primarily from transportation sources. Thresholds for the analysis of temporary construction noise are usually included in the Municipal Code. However, the San Ramon Municipal Code does not provide quantitative noise standards for construction or operation of noise sources within the City. Section B6-100 of the San Ramon Municipal Code restricts construction within a residential zone to the hours between 7:30 a.m. and 7:00 p.m. on weekdays, and 9:00 a.m. and 6:00 p.m. on weekends. Section B6-97 of the Municipal Code prohibits the operation of any machinery such as pumps or other mechanical equipment without any noise control devices to muffle the noise (San Ramon, 2016).

Site A2

Sensitive receptors in the vicinity of Site A2 are single family residences. The closest residences are located approximately 150 feet to the west of the site. A short term ambient noise measurement (ST-1) was taken adjacent to the nearest residential receptor to the west of Site A2, approximately 250 feet west of the edge of Dougherty Road (refer to Figure 9). Traffic on Dougherty Road was the predominant noise source that contributed to noise at this location. The measured average noise level, (L_{av} was 49.6 dBA while the L_{90} (the noise level exceeded 90 percent of the time, which can be used as a proxy for nighttime noise level) was 42 dBA.

Another short term measurement (ST-2) was taken 25 feet west of Site A2 and approximately 50 feet from the western edge of Dougherty Road to represent the ambient noise level at the site, as shown on Figure 9. Measured noise levels at this location were higher with a L_{av} of 63.1 dBA and L_{90} of 54 dBA due not only to the closer proximity of the roadway but also because direct line-of sight with the roadway is not blocked. Noise levels at the residential receptor (ST-1) are reduced by over 13 dBA when compared to



SOURCE: Google Earth, 2017; EBMUD, 2017; Adapted by ESA, 2017

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Figure 9
Site A2 and Site A4 Noise Measurement Locations

the pump site (ST-2). While part of this reduction is attributable to the increased distance from Dougherty Road, the remaining noise reduction would be attributable to topographical block of the line-of-sight. Given that ST-1 is twice the distance from Dougherty Road than ST-2, for a line source this this would account for a reduction of three dBA to four dBA. Consequently, the additional 9 dBA of attenuation²⁰ achieved at ST-1 can be attributed to the intervening topography between the road and the residences. Therefore, it was concluded that operational noise from the pump station at A2 would attenuate by an additional nine dbA at the nearest residences from topographical shielding in addition to attenuation due to distance.

Site A4

Site A4 is located within an open space area. Nearby existing land uses include open space and two residential subdivisions approximately 350 feet to the south and 170 feet southeast of the site. Residences as close as 170 feet on Laurelspur Loop would be the nearest sensitive receptors to Site A4. A short term ambient noise measurement (ST-3) was taken at the southern boundary of the open space across the street from the nearest residences on Lilac Ridge Road and Lantana Way to capture the existing noise environment these receptors (refer to Figure 9). Existing noise sources consisted of intermittent vehicle travel on Lilac Ridge Road. While an active multi-home construction site was observed to the north, activity during the monitoring period was negligible with a few spates of distant hammering. The measured L_{av} was 50.4 dBA and L_{90} was 42 dBA. The line of sight between Site A4 and its nearest receptors is interrupted by topography which offers additional noise attenuation conservatively estimated to be five dBA. Sensitive receptors along the proposed pipeline alignment include residences on Lantana Way, Sky Jasmine Way, Laurelspur Loop and the receptors in the Coyote Creek Elementary School.

a, c, d) Setting

Construction Noise

Construction activity noise levels at and near the Project sites would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Construction-related vehicle trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. Table 9 shows typical maximum noise levels produced by various types of construction equipment.

Noise impacts from construction generally result when construction activities occur during the noise-sensitive times of the day (early morning, evening, or nighttime hours), in areas immediately adjacent to sensitive receptors, or when construction noise lasts over extended periods of time. Noise from construction activities generally attenuates at a rate of 6.0 to 7.5 dB per doubling of distance (Caltrans, 1998).

²⁰ The gradual loss in intensity.

TABLE 9
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Exposure Level, dB L_{max} @ 50 Feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Concrete Mixer Truck	79
Concrete Pump Truck	81
Concrete Pump	82
Concrete Saw	90
Chain Saw	84
Crane	81
Drill rig truck	79
Excavator	81
Front End Loader	79
Grader	85
Jackhammer	89
Paver	77
Pumps	81
Roller	80
Scraper	84
Truck	84
Welder	74

SOURCE: Federal Highway Administration (FHWA), 2006. *Construction Noise Handbook*, August 2006. (Chapter 9)

For the purposes of the noise analysis, the Project is considered to have a significant impact if it would substantially increase the ambient noise levels for adjoining areas. As both the San Ramon General Plan and the Municipal Code do not contain quantitative significance thresholds specific to construction activities, this construction noise analysis uses the speech interference thresholds to define the significance of a predicted increase in noise levels. Speech interference is an indicator of impact on typical daytime and evening activities. A speech interference criterion of 70 dBA is used to evaluate daytime construction noise and is based on an assumed 25 dBA reduction in interior noise levels for a typical building with the windows closed (U.S. EPA, 1974).

Article 1, Section B6-100 of the San Ramon Municipal Code prohibits operation of construction equipment within residential land use districts on holidays celebrated by the federal government, and on Monday through Friday, prior to 7:30 a.m. and after 7:00 p.m. on each day and on Saturdays and Sundays, prior to 9:00 a.m. and after 6:00 p.m. The Project would limit construction activities associated with the pump station and pipeline to these hours consistent with the

San Ramon Municipal Code, to the extent feasible. There would be a need for, possible exceptions for work after 7:00 p.m. (e.g., for system connections and/or emergencies) for which EBMUD would coordinate with the City to ensure a less than significant impact to receptors.

Site A2

Construction activities associated with the pump station and pipelines at Site A2 would be temporary and is expected to last about 24 months. Assuming an attenuation rate of six dB per doubling of distance, construction equipment noise levels of 87.5 dBA from the simultaneous operation of the two most noise generating equipment as shown in Table 9 would attenuate to about 78 dBA at the nearest residences located 150 feet west of Site A2. As discussed earlier, the intervening topography between Site A2 and the residences would further attenuate noise by 9 dBA to 69 dBA, which would be less than the speech interference threshold of 70 dBA at the residences; therefore, the impact from pump station construction noise would be less than significant. The alignment of the 150 feet pipeline segment connecting the pump station to the recycled water header located directly in front of the pump station would be located away (and farther) from the nearest sensitive residences than the pump station. Therefore, the impact from pipeline construction would be less than that analyzed for the pump station, and would be less than significant. **(Less than Significant)**

Site A4

Pump station and pipeline construction associated with Site A4 would also take about 24 months to be completed. Assuming an attenuation rate of six dB per doubling of distance, maximum construction equipment noise levels of 87.5 dBA from pump station construction (assuming simultaneous operation of the two noisiest pieces of equipment shown in Table 9) would attenuate to about 71 dBA at the nearest occupied residences to the south of Lilac Ridge Road. Intervening topography would provide an additional five dB attenuation reducing maximum construction equipment noise levels at these receptors to 66 dBA, which would be below the 70 dBA speech interference threshold. Maximum construction noise levels would attenuate to 77 dBA at the nearest, future residences on Laurelspur Loop. As these residences have an uninterrupted line of sight to Site A4, there would be no additional attenuation due to topography and the distance-attenuated noise level of 77 dBA would exceed the speech interference threshold of 70 dBA.

Pipeline construction along Lilac Ridge Road and North Gale Ridge Road would lead to increased noise levels and potential exceedance of the speech interference threshold at the residences on Lantana Way, Sky Jasmine Way, Laurelspur Loop and the receptors in the Coyote Creek Elementary School. However, as pipeline construction progresses along an alignment (rather than persisting at one location), any given sensitive receptor would not be subject to construction noise for the entire duration of construction activity. Moreover, pipeline construction would be scheduled during periods when the school would not be in session to avoid impacts to students. Pipeline construction would progress at the rate of 80 LF to 200 LF per construction workday. As pipeline construction would take

place less than 100 feet from sensitive receptors in some locations, the noise impact would be significant.

A number of EBMUD standard practices and procedures, applicable to all EBMUD projects, would apply to the Project, including Standard Construction Specification 01 14 00, Work Restrictions. Section 1.4, Work Hours, of this standard construction specification includes minimization measures for restricting hours of construction equipment, including:

- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours (between 9:00 a.m. and 4:00 p.m.).

Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, also includes minimization measures for restricting hours of construction equipment, including:

- Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

Section 3.6, Noise Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, includes minimization measures for noise control of construction equipment, including:

- Contractor is responsible for taking appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.
- Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.
- Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks, as necessary.
- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours specified in Section 01 14 00.
- Stationary noise sources (e.g. chippers, grinders, compressors) shall be located as far from sensitive receptors as possible. If they must be located near receptors, adequate muffling (with enclosures) shall be used. Enclosure opening or venting shall face away from sensitive receptors. Enclosures shall be designed by a registered engineer regularly involved in noise control analysis and design.

- Material stockpiles as well as maintenance/equipment staging and parking areas (all on-site) shall be located as far as practicable from residential receptors.
- If impact equipment (e.g., jack hammers, pavement breakers, rock drills etc.) is used during project construction, Contractor is responsible for taking appropriate measures, including but not limited to the following:
 - A. Hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves shall be used, where feasible, which 05/03/17 <Spec No.> 01 35 44 - 19 Environmental Requirements could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible. It is the Contractor's responsibility to implement any mitigations necessary to meet applicable noise requirements.
 - B. Impact construction including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers etc. shall be limited to the day time hours specified in Section 01 14 00.
 - C. Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.
 - D. Utilize noise control blankets around the major noise sources to reduce noise emission from the site.
 - E. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example.
 - F. Limit the noisiest phases of construction to 10 work days at a time, where feasible.
 - G. Notify neighbors/occupants within 300 feet of project construction at least thirty days in advance of extreme noise generating activities about the estimated duration of the activity.
 - H. Noise Monitoring shall be conducted periodically during noise generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer.

By requiring use of noise control devices on construction equipment, location of noise sources farthest from receptors and limiting construction to the less noise sensitive daytime hours, compliance with these measures would provide the

7 dBA reduction needed to reduce the noise generated by pump station and pipeline construction to below the speech interference thresholds at the nearest residences. Any required nighttime construction activities would be conducted in coordination with the City and with adequate noise control measures to ensure a less than significant impact. Use of exhaust mufflers on the compressed air exhaust, along with external noise jackets on tools, would reduce noise levels at the source by as much as 10 dBA. Using a muffler on the equipment that produces 87.5 dBA would reduce noise generated by the equipment to 77.5 dBA, which would attenuate to 66.7 dBA at 170 feet from the equipment (distance to nearest receptor). Constructing temporary barriers around noise sources and/or the construction site could reduce construction noise by another 5 dBA resulting in a less than significant impact. (**Less than Significant**)

Operational Noise

Once operational, the Project would generate noise from the operation of three 350 horsepower turbine pumps and a transformer. The pumps would operate for up to 12 hours a day typically during off-peak evening and nighttime hours.

The noise analysis below uses noise data measured at other enclosed pump stations for the EBMUD Water Treatment and Transmission Improvements Program (WTTIP) EIR (EBMUD, 2006). The combined noise level from the operation of three 350 horsepower pumps was estimated to be 55 dBA at a distance of 50 feet, based on measurements taken at a distance of six feet from the louvered door (generally the only opening to the enclosure) and represents the maximum exterior noise level. Noise levels measured at the pump stations were found to be 20 dB lower on the sides of the enclosure where no vents or openings were located. Transformer noise levels were estimated to be 38 dBA based on National Electrical Manufacturers Association standards (NEMA, 1994). Since distance is not specified in NEMA standards, for the purpose of this analysis, levels were conservatively applied at the far-field noise distance of 50 feet. The 55 dBA pump noise levels estimated at 50 feet already assume noise reduction from an enclosure as the measured reference noise level for pumps already included noise reduction provided by louvers. For the transformer however, an additional 10-dB noise reduction would be provided from an appropriately designed sound barrier reducing noise at 50 feet to 28 dBA. Due to the logarithmic nature of sound, the combined noise from the simultaneous operation of the three pumps and the transformer (with attenuation for enclosures) would still be 55 dbA at 50 feet. Essentially the transformer noise would not be audible over the pump noise and therefore does not contribute to the combined noise level.

Site A2

Assuming a 6 dBA reduction for every doubling of distance and the previously discussed 9 dBA reduction for intervening topography, operational noise from the simultaneous operation of the three pumps and transformer at Site A2 would result in a noise level of 36.5 dBA at the residences closest to Site A2. This level of noise would not be audible over the existing ambient noise level of 49.6 dBA, L_{av} and would therefore not increase the total ambient noise level at the

residences. Noise from the pump station at Site A2 would increase the existing nighttime noise level at the nearest receptors (estimated to be 42 dBA) by 1.1 dB. According to the General Plan standards, in noise environments less than 60 dBA DNL, a project noise increase of up to 5 dB would not be considered significant. Pipelines would be located underground and operation of the pipelines would not generate any noise. Therefore, no operational noise impact would occur from the pipelines. The Project would generate about one worker round trip per week for the maintenance of the pump plant and associated facilities and would not result in an increase in traffic noise. **(Less than Significant)**

Site A4

The nearest sensitive receptors at Site A4 are residences on Laurels spur Loop that would be as close as 170 feet to the site. Assuming the same 6 dBA attenuation for every doubling of distance and the previously discussed 5 dBA attenuation for site topography, operational noise from the simultaneous operation of the three pumps and transformer at Site A4 would result in a noise level of 39.4 dBA at the existing residences closest to Site A4. This level of noise would not be audible over the existing ambient noise level of 50.4 dBA, L_{av} . Noise from the pump station at Site A4 would increase the existing nighttime noise level at the nearest receptors (42 dBA) by 1.9 dB. According to the General Plan standards, in noise environments less than 60 dBA DNL, a project noise increase of up to 5 dB would not be considered significant. Hence, this increase in noise level from the operation of the pumps would be less than significant. Pipelines would be located underground and operation of the pipelines would not generate any noise. Therefore, no operational noise impact would occur from the pipeline. The Project would generate about one vehicle round trip per week for the maintenance of the pump plant and associated facilities and would not result in an increase in traffic noise. **(Less than Significant)**

b) Setting

Vibrations caused by construction activities can be interpreted as energy transmitted in waves through the ground. These energy waves generally dissipate with distance from the vibration source. Since energy is lost during the transfer of energy from one particle to another, vibration that is distant from a source is usually less perceptible than vibration closer to the source. Vibration from construction equipment could be perceptible in the immediate vicinity of the construction areas. Activities such as pavement breaking and pile drilling are the major sources of groundborne noise and vibration during construction. Ground borne vibration levels from other types of construction equipment would not be perceptible to receptors especially if they operate at distances beyond 25 feet from sensitive receptors (FTA, 2006).

Impacts Site A2 and Site A4

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength

with distance. Buildings founded on the soil in the vicinity of the construction site respond to these vibrations, with varying results ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels

The Federal Transit Administration (FTA) Transit Noise and Impact Assessment Report recommend a construction vibration criterion of 0.5 inch/sec PPV to assess impacts from construction activities to reinforced-concrete, steel or timber buildings (FTA, 2006). The report also includes vibration levels for various types of construction equipment measured under a wide variety of construction activities. Construction activities that typically generate the most severe vibrations are blasting and impact pile driving. No such activities are proposed as part of the project and most of the equipment proposed to be used as part of Project construction would generate very minimal vibration that would be perceptible only within 25 feet from the equipment. As none of the affected receptors would be located within 25 feet of construction activity at both proposed pump station sites and the pipeline alignment locations, the temporary impact of vibration and groundborne noise from construction equipment would not be considered significant.

Further, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Sections 3.5 and 3.6 of this standard construction specification include the following measures to control vibration from construction equipment and ensure compliance with the FTA vibration criterion:

- Limit surface vibration to no more than 0.5 in/sec PPV, measured at the nearest residence or other sensitive structure.
- Upon homeowner request, and with homeowner permission, the District will conduct preconstruction surveys of homes, sensitive structures and other areas of concern within 15 feet of continuous vibration-generating activities (i.e., vibratory compaction). Any new cracks or other changes in structures will be compared to preconstruction conditions and a determination made as to whether the proposed Project could have caused such damage. In the event that the Project is demonstrated to have caused the damage, the District will have the damage repaired to the pre-existing condition.
- If impact equipment is used, the Contractor is responsible for taking appropriate measures, including but not limited to the following:
 - Hydraulically or electrically powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about ten dB). External jackets on the tools themselves shall be

used, where feasible, which could achieve a reduction of five dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible.

- Impact construction, including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers, etc., shall be limited to the daytime hours specified in Standard Construction Specification 01 14 00.
- Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings.
- Utilize noise control blankets around the major noise sources to reduce noise emission from the site.
- Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example.
- Limit the noisiest phases of construction to ten workdays at a time, where feasible.
- Notify neighbors/occupants within 300 feet of Project construction at least 30 days in advance of extreme noise-generating activities about the estimated duration of the activity.
- Noise monitoring shall be conducted periodically during noise-generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer.

Implementation of Sections 3.5, Vibration Control, and 3.6, Noise Control, of Standard Construction Specification 01 35 44 would require vibration controls for construction equipment and provide for preconstruction surveys if necessary.

Section 1.4 of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, restricts the hours impact construction equipment can be used on site, including the following provisions:

- Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours (between 9:00 a.m. and 4:00 p.m.).

Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, also includes minimization measures for restricting hours of construction equipment, including:

- Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc.) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

Implementation of Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00 would limit construction activity work hours, including the hours when impact equipment can be used on site.

Because Sections 3.5, Vibration Control, and 3.6, Noise Control, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, and Section 1.4, Work Hours, and Section 1.8, Construction Noise, of EBMUD's Standard Construction Specification 01 14 00, Work Restrictions, have been incorporated into the Project, and these sections require vibration controls for construction equipment and restrict construction activity work hours, the Project impacts from exposure to or generation of excessive ground-borne vibration or ground-borne noise levels are less than significant. Specifically, implementation of the standard construction specification to limit surface vibration to no more than 0.5 in/sec PPV, as measured at the nearest residence or other sensitive structure would ensure compliance with the FTA vibration criterion and result in a less than significant impact. **(Less than Significant)**

Operation of the pump station and pipeline would not be expected to affect nearby land uses because of the limited potential for vibration from sources at these facilities and the distance to sensitive receptors resulting in a less than significant impact. **(Less than Significant)**

e, f) **Site A2 and Site A4**

Neither Site A2 nor Site A4 is located within two miles of a public airport, private airstrip, or is within an airport land use plan. **(No Impact)**

References

California Department of Transportation (Caltrans), *Traffic Noise Analysis Protocol for New Highway Construction and Highway Reconstruction Projects*, October 1998.

City of San Ramon, *General Plan 2035, Chapter 10. Noise*, adopted on April 28, 2015.

City of San Ramon, *Municipal Code, Title B - Regulations, Division B6 – Health, Sanitation and Environmental Quality, Chapter V – Noise Control*, revised on March 29, 2016.

East Bay Municipal Utility District (EBMUD), *EBMUD Water Treatment and Transmission Improvements Program DEIR, Section 3.10 – Noise and Vibration*, June 2006.

EBMUD, Standard Construction Specification, Section 01 14 00, Work Restrictions, May 3, 2017.

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

Federal Highway Administration (FHWA), 2006. *Construction Noise Handbook, Chapter 9*, August 2006.

Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment (Guidance Manual), Chapter 12*, May 2006.

National Electrical Manufacturers Association (NEMA), *NEMA Standards Publication No. TR 1-1993, Transformers, Regulators and Reactors*, 1994.

U.S. Environmental Protection Agency (USEPA), *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, EPA/550-9-74-004, 1974.

USEPA, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

2.2.13 Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) **Site A2 and Site A4**

Pump Station R3000 would serve Pressure Zone 3 of the SRVRWP. The pump station would provide peak flows of about 5.6 MGD of recycled water for commercial irrigation purposes. Although the pump station would reduce the amount of potable water used for irrigation, allowing it to be available for drinking water instead, the Project would not induce substantial population growth. The additional water does not accommodate unexpected or unplanned development. The recycled water offsets potable water use and reduces the need for severe rationing during droughts. **(Less than Significant)**

b, c) **Site A2 and Site A4**

The Project would not displace existing housing or people; therefore, the Project would not necessitate the construction of replacement housing elsewhere. **(No Impact)**

References

DERWA, *Draft Environmental Impact Report for the San Ramon Valley Recycled Water Program*, State Clearinghouse No. 96013028, August 1996.

2.2.14 Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a) **Site A2 and Site A4**

The Project would not result in the construction of a major housing development or other action that could drive increases in demand for public services. The Project would not require additional fire or police protection, need for schools, demand for parks, or need for other public facilities, such that new or physically altered public facilities would be needed. The General Plan discusses the standards and capital improvements and facilities that are needed to serve the City during future growth, as well as the guiding and implementing policies to ensure collaboration with the City and service providers. By following these guiding policies and implementing policies, the City maintains acceptable service ratios response times, and other performance objectives. For further discussion of the potential for pipeline construction in public roadways to temporarily affect emergency vehicle response time, refer to Checklist item e in Section 2.2.16, *Transportation and Traffic*. **(No Impact)**

References

The City of San Ramon, *San Ramon General Plan 2035*, Public Utilities Element, adopted by the City Council April 28 2015. Available online at <http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm>. Accessed on August 15, 2016.

2.2.15 Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
15. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a) **Site A2 and Site A4**

The Project would not result in new housing development or other activities that would increase use, alter usage patterns, or increase demand for existing recreational facilities, thereby causing increased physical deterioration of recreation related facilities or demand for new facilities. **(No Impact)**

b) **Site A2 and Site A4**

Both sites are located in the Gale Ranch area in the City of San Ramon. Residential development exists to the east and west of Site A2 and to the north and south of Site A4. The northern portion of the City of San Ramon's West Alamo Creek Trail passes near both Site A2 and Site A4. West Alamo Creek Trail begins approximately two miles south of Site A4. Figure 10 shows the trail route through the site area. The trail continues north through Coyote Creek Elementary School and Lilac Ridge Road, and then goes east from the bottom of the EBMUD access road, around the new housing development and ends at Ivy Pointe Circle, directly west and uphill of Site A2. The closest section of the trail would be approximately 300 feet away from the pump station at Site A2 and 70 feet away from the pump station at Site A4. The segment of trail that runs between Site A2 and Site A4 is a 10-foot wide earthen trail that is used for hiking and biking throughout the Dougherty Hills. Construction of pipelines at Site A4 may temporarily interfere with a small portion of West Alamo Creek Trail that runs down Lilac Ridge Road and N. Gale Ridge Road, but the trail would still be accessible during construction. **(Less than Significant)**

References

The City of San Ramon, City Map, *Exploring San Ramon*. Available online at http://www.sanramon.ca.gov/parks/parks_facilities/citymap.htm. Accessed on September 7, 2016.



SOURCE: The City of San Ramon, City Map, Exploring San Ramon; Google Earth, 2017; adapted by ESA, 2017

SRVRWP Pump Station R3000 . 160455
Figure 10
Surrounding Recreational Uses

2.2.16 Transportation and Traffic

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
16. TRANSPORTATION/TRAFFIC —				
Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

Setting

Major roadways passing through the City of San Ramon in the north-south direction include Interstate 680, Camino Tassajara, Alcosta Boulevard, and Dougherty Road. Major east-west roadways in San Ramon include Bollinger Canyon Road, Crow Canyon Road, and Norris Canyon Road (refer to Figure 11). Site A2 is located on the west side of Dougherty Road. Site A4 is located on open space land north off of Lilac Ridge Road.

Transit service in San Ramon is provided by the Central Contra Costa Transit Authority (County Connection), but there are currently no bus routes that travel on Dougherty Road (where Site A2 is located), or on North Gale Ridge Road or Lilac Ridge Road (access roads for Site A4) (County Connection, 2016).

There are several Class II bike lanes surrounding the Project locations. A Class II bike lane is a one-way striped and signed lane on a street (San Ramon, 2015). Dougherty Road has a Class II bike lane. Access to Site A2 is in Dougherty Road. Crow Canyon Road, Monarch Road, and Bollinger Canyon Road are different ways to access Site A4, and all contain Class II bike lines.



SOURCE: Google Earth, 2018; ESA, 2018

SRVRWP Pump Station R3000 . 160455

Figure 11
Major Roadways Around the Potential Project Sites

The Project would not cause long-term effects on transportation or traffic because, once installed, the pump station would generally be operated remotely via the EBMUD's Supervisory Control and Data Acquisition (SCADA) system. One worker vehicle trip per week is anticipated for pump station operation and maintenance.

The duration of the potential significant impacts would be limited to the period of time needed to construct the Project. Existing traffic conditions plus various Project peak-hour traffic conditions were calculated and compared to the CEQA Guidelines significance criteria to determine significance of impact.

a, b) **Site A2 and Site A4**

Based on the existing roadway network serving the Project area, trucks and construction workers traveling to and from the Project sites would use a combination of highways (Interstate 680), City streets (two-lane Lilac Ridge Road, two-lane North Gale Ridge Road), and County roads (six-lane divided Dougherty Road) to reach other local points and/or regional locations.

Construction activities that would generate traffic include trucks hauling equipment and materials to and from Sites A2 and A4 and the pipeline alignments, equipment brought to the work sites for excavation and grading, and the daily arrival and departure of construction workers. The maximum number of truck and construction worker vehicle trips that would be needed for pump station and pipeline construction are shown in Table 10.

**TABLE 10
MAXIMUM TRUCK AND WORKER TRIPS DURING CONSTRUCTION**

Construction Phase	Site A2			Site A4		
	Approximate Duration (months)	Maximum Trucks (per day; one way trips)	Maximum Worker Vehicles (per day; one way trips)	Approximate Duration	Maximum Trucks (per day; one way trips)	Maximum Worker Vehicles (per day; one way trips)
Pump Station Construction	24	64	10	24	64	10
Excavation	0.5	46	--	0.5	232	--
Pipeline Construction ^a	--	--	--		4	26

NOTE:

^a Pipeline construction for Site A2 would occur in concurrence with the pump station construction, so the haul trucks and trips per day are included as part of the total estimate provided for the Site A2 pump station construction.

The total volume of soil that would be hauled during excavation at Site A2 is approximately 200 CY. The soil would be hauled away in approximately 23 nine-CY trucks (46 one-way trips) over approximately 14 days. The total volume of soil that would be hauled during excavation at Site A4 is approximately 1,040 CY. The soil would be hauled away in approximately 116 nine-CY trucks (232 one-way trips) over approximately 14 days. Pump

station construction would occur during a period of approximately 24 months. It is anticipated that approximately 100 feet of one of the three southbound lanes on Dougherty Road would be closed daily during non-commute hours for the pump station excavation and concrete pumping activities. Construction staff for the pump stations primarily would work eight-hour shifts sometime between 7:30 am to 7:00 pm each weekday (Monday through Friday) with the rare exception of work occurring outside of normal work hours, such as work in excess of eight hours per day, and work on weekends (9:00 am to 6:00 pm).

Pipeline construction is estimated to proceed at a rate between 80 LF and 200 LF of pipeline per workday in paved areas. Pipeline construction for Site A2 would occur in concurrence with the pump station construction described above, so the haul trucks and trips per day are included as part of the total estimate provided above for the Site A2 pump station construction. Pipeline construction for Site A4 would require approximately 14 nine-CY haul trucks (28 one-way trips) per day for trench pavement, soil disposal, and fill import deliveries. Four trucks would be used per day for deliveries of pipeline, appurtenance, paving, and other equipment. There would be approximately 13 workers (26 one-way trips) and four one-way truck trips per day for pipeline construction for Site A4. Pipeline construction would occur primarily Monday through Friday from 7:30 am to 7:00 pm.

Detailed construction phasing has not yet been developed; however, pipeline construction would not overlap with peak truck trips (off-hauling of soils) for pump station development. Consequently, there would be a maximum of ten one-way worker vehicle trips per day (five commute trips in the morning and five commute trips in the afternoon) and a maximum of eight one-way truck trips per hour (assuming an eight-hour work day, this equals 64 trips per day) to either Site A2 or Site A4 for the pump station construction. The total maximum of one-way worker vehicle trips and truck trips combined for the pump station construction would be 74 trips per day.

The proposed pipeline alignment from Site A4 to the recycled water transmission main in Dougherty Road traverses open space (within the existing access road for Reservoir R200) and the following public streets: Lilac Ridge Road, North Gale Ridge Road, and Dougherty Road. EBMUD anticipates that one lane of the two-lane Lilac Ridge Road and two-lane North Gale Ridge Road would be closed during pipeline construction and connection. Alternate one-way traffic control around the construction area would be implemented in order to maintain two-way traffic flow on these roads. It is expected that one or two lanes would be closed (daily during non-commute hours) on either the southbound or northbound side of Dougherty Road during pipeline construction, with traffic being funneled into the remaining available lane(s). The proposed pipeline alignment for Site A2 would be installed beneath the southbound travel lanes of Dougherty Road and would require temporary lane closures. It is expected that one or two lanes would be closed (daily during non-commute hours) on the southbound side of Dougherty Road during pipeline construction, with traffic being funneled into the remaining

available lane(s). Traffic control measures (e.g., signage, cones, flaggers) would be implemented in order to route traffic around the construction area. Prior to pipeline construction, EBMUD would obtain an encroachment permit from the City of San Ramon.

Construction-generated traffic, and lane closures, would be temporary (i.e., would end when construction is completed), and therefore would not result in any long-term degradation in operating conditions (level of service) on any Project roadways. The primary offsite impacts from the movement of construction trucks would include short-term and intermittent lessening of roadway capacities due to slower movements of the trucks and larger turning radii of the trucks compared to passenger vehicles. The temporary increase in traffic caused by Project-generated traffic is considered less than significant in relation to the existing traffic load and capacity of the street system because (1) the percent increase in traffic volumes on area arterials and freeways (up to about 0.4 percent²¹) would not be substantial relative to background traffic conditions, and would not significantly disrupt traffic flow on these roadways, and (2) while traffic volume increases would be noticeable on local-serving roadways, the increased traffic volumes would remain at levels less than the carrying capacity of the affected roads. Therefore, these local roads would accommodate the Project-generated truck and worker vehicle trips, which would be dispersed throughout the day.

Temporary closure of one or two lanes in either the southbound or northbound direction on Dougherty Road would cause delays for vehicles that currently travel on three lanes. Limiting the lane closures to non-commute hours (i.e., between 9:00 am and 4:00 pm) would reduce the amount of delay that would occur during commute hours because of the lower traffic volumes during off-peak hours. This portion of Dougherty Road is not part of the Alameda County Transportation Commission (CTC) designated Congestion Management Program (CMP) roadway network (Alameda CTC, 2017). Therefore, the Project would not conflict with an applicable congestion management program. Dougherty Road, has a daily traffic volume of about 18,290 vehicles (based on an automatic machine traffic count on Thursday, October 26, 2017). The hourly traffic volumes on Dougherty Road between 9:00 am and 4:00 pm range from 423 to 746 vehicles in each direction. The generalized per-lane capacity for six-lane divided arterials ranges from 58,400 to 59,900 (FDOT, 2013). The daily traffic volume on Dougherty Road, as well as the hourly traffic volumes between 9:00 am and 4:00 pm, are lower than this generalized per-lane capacity. On that basis, the delays during temporary lane closures would be less than substantial.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 14 00, Work

²¹ The arterial closest to the Project, Dougherty Road, has a daily traffic volume of about 18,290 vehicles (based on an automatic machine traffic count on Thursday, October 26, 2017), and the Project's total maximum of 74 trips per day would represent an 0.4 percent increase.

Restrictions, and Standard Construction Specification 01 55 26, Traffic Regulation, which would further reduce potential traffic impacts.

Standard Construction Specification 01 14 00, Work Restrictions, limits the work hours for the Project; haul hours would be limited to between 9:00 am and 4:00 pm to prohibit haul truck traffic on Lilac Ridge Road, North Gale Ridge Road, and Dougherty Road during commute hours, so construction haul and material trucks trips occur outside of the peak morning and evening commute hours. By prohibiting haul and material trucks during the peak morning and evening commute hours, potential short-term construction impacts on traffic due to the Project alone would be less than significant.

EBMUD's Standard Construction Specification 01 55 26, requires a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones and requires that the Traffic Control Plan include:

- Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible.
- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.
- Procedures, to the extent feasible, to schedule construction of Project elements to minimize overlapping construction phases that require truck hauling.
- Designated contractor staging areas for storage of all equipment and materials in such a manner to minimize obstruction to traffic.
- Locations for parking by construction workers.

Implementation of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, would minimize impacts to local circulation during construction of the Project by requiring circulation and detour plans (for automobiles, bicycles and pedestrians), providing emergency response vehicle access, and designating parking sites for construction workers.

Because EBMUD's Standard Construction Specifications 01 14 00, Work Restrictions, and 01 55 26, Traffic Regulation, have been incorporated into the Project and include provisions for limiting haul and material trucks during construction to time periods outside of peak commute hours, and require implementation of a Traffic Control Plan that minimizes impacts to traffic circulation, Project impacts related to short-term construction traffic from the Project alone would be less than significant. Therefore, the Project would not conflict with an applicable plan, ordinance or policy establishing measures of

effectiveness for the performance of the circulation system. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A of this Initial Study/Mitigated Negative Declaration) lists the applicable standard specifications language. (**Less than Significant**)

c) **Site A2 and Site A4**

The proposed facilities would be limited in height to approximately one story, with a radio antenna that would extend approximately 10 feet above the roof of the building. The proposed facilities are not located near an existing airport. Additionally, the Project would not introduce new air traffic or interfere with existing air traffic. Therefore, the Project would have no impact on air traffic patterns. (**No Impact**)

d) **Site A2 and Site A4**

Neither Project construction nor operation would alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. There is a Class II bike lane and sidewalk on Dougherty Road, and the pipeline construction in Dougherty Road for both Sites A2 and A4 would result in a temporary lane closure and disruption of the bike lane and sidewalk. In addition, the construction truck traffic along Dougherty Road for both Sites A2 and A4 would increase the potential for conflicts and increased traffic safety hazards for bicyclists and pedestrians. Also, although Project construction for Site A4 would temporarily increase the type of vehicles (i.e., trucks) that can be incompatible with the existing predominantly passenger vehicles on North Gale Ridge Road and Lilac Ridge Road, that change to the mix of vehicles would stop when Project construction is completed. The proposed pipeline construction for Site A4 in North Gale Ridge Road and Lilac Ridge Road would pass by Coyote Creek Elementary School. However, there would be no pipeline construction activity on North Gale Ridge Road when the Coyote Creek Elementary School is in session.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 3.4, Temporary Traffic Control, of EBMUD's Standard Construction Specification 01 55.26, Traffic Regulation, which shall include:

- Sidewalks for pedestrians will remain open if safe for pedestrians. Alternate routes and signing will be provided if pedestrian routes are to be closed.

Also, Section 3.1, General, of EBMUD's Standard Construction Specification 01 55.26, Traffic Regulation, includes the following:

- When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.

- In addition, pipeline construction methodology would include T-cut repair, a replacement of the roadway to one foot beyond the edge of pipeline trench.

Because EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, has been incorporated into the Project and include provisions for traffic circulation and detour plans (for automobiles, bicycles and pedestrians), and the Project would include replacement of the roadway, Project impacts related to short-term traffic safety impacts from the Project alone would be less than significant, and the Project would not result in permanent changes to existing traffic design features. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A) lists the applicable standard specifications language. **(Less than Significant)**

e) **Site A2 and Site A4**

Construction activities at the pump station sites would not obstruct emergency access; however, installation of the proposed pipeline in Lilac Ridge Road, North Gale Ridge Road and Dougherty Road could result in delays to emergency vehicles (though access around the construction areas would be maintained at all times).

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation.

Section 1.2, Submittals, requires preparation of a Traffic Control Plan that conforms to the most current version of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones, and requires that the Traffic Control Plan include:

- A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included.

Section 3.1, General (Execution) includes the following provisions:

- For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles.
- A minimum of 12-foot-wide travel lanes must be maintained unless otherwise approved by EBMUD.

Because Section 1.2, Submittals, and Section 3.1, General (Execution), of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, has been incorporated into the Project and requires maintenance of emergency

roadway access at all times, Project impacts related to emergency access would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A) lists the applicable standard specifications language. (**Less than Significant**)

f) **Site A2 and Site A4**

Implementation of the Project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes), including changes in policies or programs that support alternative transportation, nor construct facilities in locations which future alternative transportation facilities are planned. The Project would not conflict with adopted policies, plans and programs supporting alternative transportation. Regarding the Project's effects on the performance of public transit, there is no existing transit service on roads that would be used to access either Site A2 or Site A4; and therefore no impact. Regarding the Project effects on the performance of bicycle or pedestrian facilities, there is a Class II bike lane and sidewalk on Dougherty Road, the use of which would be temporarily disrupted during Project construction. All adverse impacts to alternative transportation would be temporary, and would not affect any adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities.

As described above, implementation of Section 1.2, Submittals, of EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, would minimize impacts to local circulation during construction of the Project by requiring circulation and detour plans (for automobiles, bicycles and pedestrians).

Because EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation, have been incorporated into the Project and requires implementation of a Traffic Control Plan that minimizes impacts to traffic circulation, Project impacts related to short-term construction traffic from the Project alone would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A) lists the applicable standard specifications language. (**Less than Significant**)

References

Alameda County Transportation Commission. 2017. *Congestion Management Program*. December 2017.

Central Contra Costa Transit Authority (County Connection), *Maps and Schedules*. Available online at <http://countyconnection.com/maps-schedules/>. Accessed on September 12, 2016.

City of San Ramon, *San Ramon General Plan 2035*, Traffic and Circulation Element, April 28 2015. Available online at <http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm>. Accessed on August 16, 2016.

EBMUD, Standard Construction Specification, Section 01 14 00, Work Restrictions,
May 3, 2017.

EBMUD, Standard Construction Specification, Section 01 55 26, Traffic Regulation,
February 9, 2017.

Personal communication, Deborah Fehr, City of San Ramon, Associate Engineer, email
correspondence on March 15, 2018 providing Traffic Counts on Dougherty Road.

State of Florida Department of Transportation, 2013 Quality / Level of Service Handbook
(Generalized Service Volume Tables).

2.2.17 Tribal Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
17. Tribal Cultural Resources —				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historic Resources, or in a local register of historic resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a, b) **Site A2 and Site A4**

CEQA requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in Public Resources Code Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

ESA submitted a Sacred Lands File search request to the NAHC on July 25, 2016. ESA received a response on August 3, 2016. The NAHC provided a list of six Native American individuals and organizations who might have additional information or concerns. On behalf of EBMUD, ESA sent a letter to the tribes identified by the NAHC and did not receive any replies.

Based on the results of the NWIC records search, surface survey, and the geologic context described in Section 2.2.5 of this Initial Study, there is a low potential for the presence of subsurface prehistoric archaeological deposits and there are no tribal cultural resources at Site A2, Site A4, or the staging areas. While unlikely, the inadvertent discovery of a tribal cultural resource cannot be entirely discounted. Disturbance to a tribal cultural resource would be a significant impact.

As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project, including EBMUD's Standard Construction Specification 01 35 44,

Environmental Requirements. Section 3.9, Protection of Cultural and Paleontological Resources, of this standard specification, which includes appropriate cultural resources management practices and complies with statutory requirements, outlines the following procedures:

- Preconstruction cultural resources training is required for all construction personnel.
- In the event that a cultural or paleontological resource is identified during preconstruction activities or during excavation for construction activities, all work within 100 feet of the resource shall be halted until a qualified archaeologist can review, identify, and evaluate the resource for its significance. Should the archaeologist determine that an archaeological resource has the potential to be a tribal cultural resource, a Native American monitor shall be retained by EBMUD to monitor work in the area where the tribal cultural resource was discovered.

Because Section 3.9, Protection of Cultural and Paleontological Resources, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, has been incorporated into the Project, and it requires implementation of procedures that address the inadvertent discovery of tribal cultural resources and follows statutory law, the Project's impact related to tribal cultural resources is less than significant. (**Less than Significant**)

References

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

Koenig, Heidi, *East Bay Municipal Utility District, R3000 Pump Station, San Ramon Valley Recycled Water Program, Contra Costa County, Phase I Cultural Resources Survey Report*. Prepared for East Bay Municipal Utility District, June 2017.

2.2.18 Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
17. UTILITIES AND SERVICE SYSTEMS —				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a) **Site A2 and Site A4**

The Project is limited to construction and operation of a recycled water pump and distribution facilities and would not generate wastewater during operation. Implementation of the Project would not exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board. **(No Impact)**

b, e) **Site A2 and Site A4**

The Project consists of construction and operation of recycled water distribution facilities, and would have a beneficial effect on water supplies. The Project would not require additional water supplies, and would not result in the construction of a major housing development or other action that could drive increases in demand for water or wastewater treatment facilities. The construction of new water or wastewater treatment facilities or expansion of existing facilities would not be required. **(No Impact)**

c) **Site A2**

Runoff from Site A2 would drain into a new storm drain pipeline at the southeast corner of the site that would then connect into an existing 36-inch storm drain

pipeline north of the site that runs perpendicular to Dougherty Road. These existing facilities are sufficiently sized so as to enable stormwater management from the Project area without further modification. **(Less than Significant)**

Site A4

Runoff from Site A4 would drain into a new pipeline that would then connect into the existing storm drain system for Reservoir R200. These existing facilities are sufficiently sized so as to enable stormwater management from the Project area without further modification. **(Less than Significant)**

d) **Site A2 and Site A4**

The Project would require limited water during construction in support of dust suppression and on site earth moving activities. During operations, no potable water would be required, as the equipment to be installed does not require potable water for operations and the new building would not be manned. The new landscaping would be watered with recycled water. Therefore, existing water supplies would be sufficient to enable construction and operation and the Project does not require new water entitlements or resources. **(No Impact)**

f) **Site A2 and Site A4**

The City of San Ramon currently contracts with Valley Waste Management (VWM) for the collection and hauling of franchised solid waste, residential recycling, and green waste. San Ramon also contracts with Republic Services of Northern California to send its solid waste to the company's Vasco Road Sanitary Landfill in Alameda County (San Ramon, 2015). Vasco Road Sanitary Landfill has a remaining capacity of 7,379,000 cubic yards as of October 31, 2016 (CalRecycle, 2018). The amount of soil to be hauled off site during construction and the percentage of remaining landfill capacity that solid waste from Project construction would fill is shown below in Table 11.

**TABLE 11
CONSTRUCTION SOIL GENERATION AND PERCENTAGE OF LANDFILL CAPACITY**

	Construction Activity	Cubic Yards of Soil Hauled	Percentage of Landfill Capacity
Site A2	Pump Station	200	2.51 e ⁻⁴
	Pipeline	250	3.14 e ⁻⁵
Site A4	Pump Station	1,040	1.31 e ⁻³
	Pipeline	4,160	5.22 e ⁻⁴

Construction at Site A2 would require approximately 200 cubic yards of soil to be hauled away during pump station construction and approximately 250 cubic yards during pipeline construction. Construction at Site A4 would require approximately 1,040 cubic yards of soil to be hauled away during pump station construction and approximately 4,160 cubic yards during pipeline construction. Solid waste generation would be limited to construction activities. As detailed in the Project Description, a number of EBMUD standard practices and procedures,

applicable to all EBMUD projects, have been incorporated into the Project, including Standard Construction Specification 01 35 44, Environmental Requirements. Section 1.3.C, Construction and Demolition Waste Disposal Plan, of this standard construction specification includes submittal of a Construction and Demolition Waste Disposal Plan that:

- Requires measures for removing, handling, transporting, and disposing of any waste material (except liquid wastes addressed in the Water Control and Disposal Plan).
- Includes a sampling and analytical program for characterizing any waste material, as needed, prior to reuse, recycling or disposal.
- Identifies the disposal method for soil and the approved disposal site, and includes written documentation that the disposal site will accept the waste. Prior to disposition of wastes, the Contractor must submit copies to EBMUD of waste profile forms and correspondence between the contractor and the disposal facility. Prior to disposal of hazardous wastes, the contractor must submit copies of the waste manifests to EBMUD and provide documentation that the waste hauler is regulated by the state to transport hazardous wastes.

Because Section 1.3.C, Construction and Demolition Waste Disposal Plan, of EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements, have been incorporated into the Project and include provisions for identifying disposal methods for soil and the approved disposal site, Project impacts from potential insufficient landfill capacity for the Project would be less than significant. The EBMUD Practices and Procedures Monitoring and Reporting Plan (Appendix A) lists the applicable standard specifications language. No long-term solid waste generation would be associated with the Project. (**Less than Significant**)

g) **Site A2 and Site A4**

Operation of the Project would not involve the routine use of any hazardous materials. While some hazardous materials such as fuels, petroleum lubricants, adhesives, solvents, and paints would be used during the temporary construction period, Project construction would comply with all applicable regulatory requirements related to solid waste. Specifications for Project construction would contain requirements for the handling, storage, cleanup, and disposal of hazardous materials including cement or other construction pollutants. For additional discussion of hazardous materials and potential hazardous materials handling and impacts, please refer to Section 2.2.8, *Hazards and Hazardous Materials* discussion above. (**Less than Significant**)

References

CalRecycle, Solid Waste Information System (SWIS), *Facility/Site Summary Details: Vasco Road Sanitary Landfill (01-AA-0010)*, 2018. Available online at <http://www.calrecycle.ca.gov/SWFacilities/Directory/01-AA-0010/Detail/>. Accessed on July 23, 2018.

City of San Ramon, *San Ramon General Plan 2035, Public Facilities and Utilities Element*, adopted by the City Council April 28 2015. Available online at <http://www.ci.san-ramon.ca.us/gprc/gprcindex.htm>. Accessed on August 16, 2016.

EBMUD, Standard Construction Specification, Section 01 35 44, Environmental Requirements, March 2, 2018.

2.2.19 Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
18. MANDATORY FINDINGS OF SIGNIFICANCE —				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) The Project has the potential to degrade the quality of the environment. However, as described in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Air Quality, Greenhouse Gas Emissions, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Tribal Cultural Resources, and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant. Further, as described in the MND above, the Project has the potential to cause significant impacts related to Aesthetics, Biological Resources and Cultural Resources. Mitigation measures have been identified to reduce these impacts to less than significant levels. No further mitigation would be required, and the Project would not degrade the quality of the environment (see sections 2.2.1 to 2.2.18 above, for detailed analysis).

The Project has the potential to degrade the quality of the environment. The impact from construction night lighting on nighttime views could be potentially significant. However, this impact would be reduced to less than significant levels through implementation of Mitigation Measure AES-1. For additional discussion, please refer to Section 2.2.1, *Aesthetics*. No further mitigation would be required.

The Project has the potential to impact biological resources. As discussed above in Section 2.2.4, *Biological Resources*, depending upon the site chosen, the

Project could result in impacts to CRLF, roosting bats, nesting birds, and existing trees at Site A2 during construction. However, compliance with EBMUD's Standard Construction Specifications described in Section 2.2.4, along with implementation of the mitigation measures BIO-1 and BIO-2, would ensure that all impacts to biological resources would be less than significant. No other biological resources would be substantially affected, and the Project would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. For additional discussion, please refer to Section 2.2.4, *Biological Resources*. No further mitigation would be required.

The Project has the potential to impact cultural and paleontological resources. As discussed above in Section 2.2.5, *Cultural Resources*, there are no documented historical resources or archaeological resources in the Project area. Compliance with EBMUD's Standard Construction Specifications described in Section 2.2.5, along with implementation of the mitigation measure CUL-1, would ensure that all impacts to cultural and paleontological resources would be less-than-significant, and the Project would not eliminate important examples of the major periods of California history or prehistory. For additional discussion, please refer to Section 2.2.5, *Cultural Resources*. No further mitigation would be required.

- b) As described in the document above, the Project has the potential to cause significant impacts related to Aesthetics, Biological Resources and Cultural Resources. Mitigation measures have been identified that would reduce these impacts to less than significant levels.

A number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Air Quality, Greenhouse Gas Emissions, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Tribal Cultural Resources, and Transportation and Traffic, the relevant EBMUD standard practices and procedures discussed in the MND ensure that impacts would be less than significant.

Cumulative environmental effects are multiple individual effects that, when considered together are considerable or compound or increase other environmental impacts. The individual effects may result from a single project or a number of separate projects and may occur at the same place and point in time or at different locations and over extended periods of time.

As discussed in the Initial Study Checklist above, individual project-related significant impacts have been identified for the Pump Station R3000, all of which would be mitigated to less-than-significant levels through implementation of the mitigation measures described in the Initial Study Checklist. The Project has

limited impacts on the physical environment and most of the impacts associated with implementation of the Project would occur during construction, and thus would be short-term.

The potential for Project-generated impacts to contribute to a significant cumulative impact would arise if they are located within the same geographic area. In addition to the geographic scope, cumulative impacts can be determined by timing of the other projects relative to the Project. Schedule is particularly important for construction-related impacts. For a group of projects to generate cumulative construction impacts, they must be temporally as well as spatially proximate. There are no projects identified by the City of San Ramon near the Pump Station R3000 sites that would be under construction at the same time as Pump Station R3000 (City of San Ramon, 2016). EBMUD has identified pipeline installations that would occur in Red Willow Road, Tassajara Ranch Road, and Crow Canyon Road west of Dougherty Road, all of which are located approximately three miles north of the potential Pump Station R3000 sites. These pipelines were included in the San Ramon Valley Recycled Water Program (SRVRWP) EIR²² as future EBMUD recycled water pipelines. The Tassajara Ranch Road and Crow Canyon Road locations were classified as transmission pipelines in the SRVRWP EIR, and the Red Willow Road location was classified as a distribution pipeline in the SRVRWP EIR. The EIR included mitigation measures to address significant impacts, which would be incorporated into these pipeline projects. Construction of these pipeline installations could occur in Spring 2024 or later. Construction of Pump Station R3000 is anticipated to take approximately 24 months and would occur anytime between 2020 and 2024. Therefore, there is a potential for Project construction to overlap with these pipeline projects.

The construction activities associated with these pipeline projects were described in the SRVRWP EIR as similar to that for the Pump Station R3000. The pipeline construction would occur within existing roadways, using an open trench construction technique. The impacts occurring during construction are likely to be similar to those of the Pump Station R3000 (i.e., effects of lighting on nighttime views if nighttime construction occurs, increased noise and dust, disruption of transportation via temporary loss of travel lanes, and increased traffic on area roadways).

If pipeline construction is necessary during nighttime hours for these pipeline projects, lighting would be used to illuminate the construction area. The construction lighting may be visible to adjacent residences and along public roadways, and the impact from night lighting on nighttime views could be potentially significant. This impact from the Pump Station R3000 would be reduced to less than significant levels through implementation of Mitigation

²² San Ramon Valley Recycled Water Program EIR (State Clearinghouse No 96013028, December 1996).

Measure AES-1. None of these pipeline projects are close enough to the Pump Station R3000 project sites such that the same residents would be adversely affected by lighting from multiple projects. Therefore, there would be no significant cumulative impact associated with nighttime lighting.

Construction of these EBMUD pipeline projects, in conjunction with the Pump Station R3000, could cause wind-blown dust that would contribute particulate matter into the local atmosphere. EBMUD implements a number of standard practices and procedures for all its projects, which include appropriate construction emission management practices and all the BAAQMD recommended control measures to reduce impacts from fugitive dust. Implementation of these standard practices and procedures would ensure that short-term air quality construction-related impacts are less-than-significant. Therefore, there would be no significant cumulative impact associated with dust.

Construction of the EBMUD pipeline projects, in conjunction with the Pump Station R3000, could result in affects to the same biological resources as the Project, primarily the Alamo Creek riparian corridor and wildlife that uses this habitat, and trees, in the short term. Impacts from the Pump Station R3000 would be reduced to less than significant levels through implementation of mitigation measures BIO-1 and BIO-2. Construction of these pipeline projects would occur within the existing roadways and would not include the removal of trees. Therefore, there would be no significant cumulative impact associated with removal of trees. The Crow Canyon Road pipeline alignment is not located near Alamo Creek, but this creek is adjacent to the proposed Tassajara Ranch Road and Red Willow Road pipeline alignments. The SRVRWP EIR included mitigation measures to address impacts to habitat and wildlife associated with the Alamo Creek corridor, which would reduce impacts to a less than significant level. Therefore, there would be no significant cumulative impact to biological resources.

Construction of the EBMUD pipeline projects, in conjunction with the Pump Station R3000, could result in impacts to unknown paleontological resources. Impacts for the Pump Station R3000 would be reduced less than significant levels through implementation of Mitigation Measure CUL-1. Excavation for these pipeline projects would occur within or adjacent to the Green Valley formation, which has a high paleontological sensitivity. However, due to the small amount of excavation associated with the pipeline construction (i.e., up to eight feet deep assuming a maximum pipelines size of 16 inches²³) and the fact that these pipeline project would occur within existing roadways, there is a low likelihood of encountering native soils associated with the Green Valley formation.

²³ In the SRVRWP EIR, the distribution pipelines would range in size from six to 18 inches and the transmission pipelines would range in size from 12 to 36 inches. The maximum size of the Pump Station R3000 pipelines would be 16 inches.

Therefore, there would be no significant cumulative impact associated with paleontological resources.

Construction of the EBMUD pipeline projects, in conjunction with the Pump Station R3000, could result in noise impacts on existing sensitive receptors. However, none of these pipeline projects are close enough to the Pump Station R3000 project sites such that the same residents would be affected by noise from multiple projects. Therefore, there would be no significant cumulative impact associated with construction-related noise.

Construction activities that would generate traffic include trucks hauling equipment and materials, and the daily arrival and departure of construction workers. The number of vehicles that would be required for the construction of these pipeline projects is not quantifiable at this time because it is unknown how many vehicles or equipment could be used by these projects. It is likely that construction vehicles for these projects would use the same major routes that would be required by the Project (i.e., Interstate 680, Bollinger Canton Road, Crow Canyon Road, and Dougherty Road); therefore, it is likely that traffic from construction of the Project and these pipeline projects could overlap spatially and temporally. Impacts from the movement of construction vehicles would include short-term and intermittent lessening of roadway capacities due to slower movements of the trucks and larger turning radii of the trucks compared to passenger vehicles. EBMUD implements a number of standard practices and procedures in all its projects, which limits the work hours so construction haul and material truck trips occur outside of the peak morning and evening commute hours. EBMUD standard practices and procedures also require development of Traffic Control Plans for all construction projects that identify the circulation and detour plans (for automobiles, bicycles and pedestrians). Implementation of these standard practices and procedures would ensure that short-term construction traffic impacts would be less-than-significant. Therefore, there would be no significant cumulative impact with respect to construction-related traffic.

Based on the discussion above, cumulative impacts related to construction would be less than significant. No further mitigation would be required.

- c) As described in a) above, the Project has the potential to cause significant impacts related to Aesthetics, Biological Resources and Cultural Resources. Mitigation measures have been identified to reduce these impacts to less than significant levels. Impacts to air quality, water quality, and hazardous materials by the Project could directly affect human beings, and all CEQA impacts discussed above could indirectly affect human beings. As detailed in the Project Description, a number of EBMUD standard practices and procedures, applicable to all EBMUD projects, have been incorporated into the Project. For impacts related to Air Quality, Greenhouse Gas Emissions, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Tribal Cultural Resources, and Transportation and Traffic, the relevant EBMUD standard

practices and procedures discussed in the MND ensure that impacts would be less than significant. No further mitigation would be required.

References

City of San Ramon, Planning Services, *Current Projects List*. Available online at http://www.ci.san-ramon.ca.us/UserFiles/Servers/Server_10826046/File/Our%20City/Departments/Community%20Development/Planning/Current%20Project%20List/projectlist.pdf Accessed August 23, 2018.

Personal communication, Reena Thomas, EBMUD, Associate Civil Engineer, email correspondence on April 10, 2018.

SECTION 3.0

Report Preparation

3.1 Lead Agency

EBMUD is the lead agency under CEQA for the preparation of the SRVRWP Pump Station R3000 Project.

Staff Member	Role
Reena Thomas	Project Manager
Cindy Hunt	Superintendent Water Treatment Distribution Quality
Sharon Hu	Associate Electrical Engineer
Linda Hu	Senior Civil Engineer
Mike Tognolini	Water Supply Improvements Division Manager
David Rehnstrom	Engineering Manager
Tim McGowan	Senior Civil Engineer
Rachel Jones	Attorney III, Office of General Counsel

3.2 Project Coordinator

EBMUD retained ESA to prepare this Initial Study/Mitigated Negative Declaration. Project support analyses and architectural renderings were provided by Orion Environmental Associates and MWA Architects, Inc., respectively.

ESA

Staff Member	Role
Jill Hamilton	Project Director
Meryka Dirks	Project Manager
Alena Maudru	Deputy Project Manager
Matthew Russell	Cultural Resources Lead
Heidi Koenig	Cultural Resources Technical Analyst
Chris Rogers	Biological Resources Lead
Elizabeth Hill	Biological Resources Technical Analyst
Jack Hutchison	Transportation and Traffic Lead
Shadde Rosenblum	Transportation and Traffic
Chris Sanchez	Air Quality, Noise, and GHG Emissions Lead

Staff Member	Role
Jyothi Iyer	Air Quality, Noise, and GHG Emissions Technical Analyst
Tracy Johnson	Landscape Design and Renderings
Thomas Fischer	Landscape Design and Renderings

Orion Environmental Associates

Staff Member	Role
Joyce Hsiao	Principal
Mary Lucas McDonald	Sr. Geologist

MWA Architects, Inc.

Staff Member	Role
Greg Robley	MWA Project Manager
Elizabeth Surya	Job Captain
Brittany Williams	Job Captain

APPENDIX A

EBMUD Practices and Procedures Monitoring and Reporting Plan

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**APPENDIX A
EBMUD PRACTICES AND PROCEDURES MONITORING AND REPORTING PLAN**

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Aesthetics						
Aesthetics b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 3.7, Protection of Native and Non-Native Protected Trees</i></p> <p>A. Tree Protection</p> <ol style="list-style-type: none"> Locations of trees to be removed and protected are shown in the construction drawings. Pruning and trimming shall be completed by the Contractor and approved by the Engineer. Pruning shall adhere to the Tree Pruning Guidelines of the International Society of Arboriculture. Erect exclusion fencing five feet outside of the drip lines of trees to be protected. Erect and maintain a temporary minimum 3-foot high orange plastic mesh exclusion fence at the locations as shown in the drawings. The fence posts shall be six-foot minimum length steel shapes, installed at 10-foot minimum on center, and be driven into the ground. The Contractor shall be prohibited from entering or disturbing the protected area within the fence except as directed by the Engineer. Exclusion fencing shall remain in place until construction is completed and the Engineer approves its removal. No grading, construction, demolition, trenching for irrigation, planting or other work, except as specified herein, shall occur within the tree protection zone established by the exclusion fencing installed shown in the drawings. In addition, no excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the tree protection zone. In areas that are within the tree drip line and outside the tree protection zone that are to be traveled over by vehicles and equipment, the areas shall be covered with a protective mat composed of a 12-inch thickness of wood chips or gravel and covered by a minimum ¾-inch-thick steel traffic plate. The protective mat shall remain in place until construction is completed and the Engineer approves its removal. Tree roots exposed during trench excavation shall be pruned cleanly at the edge of the excavation and treated to the satisfaction of a certified arborist provided by the District. Any tree injured during construction shall be evaluated as soon as possible by a certified arborist provided by the District, and replaced as deemed necessary by the certified arborist. 	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Air Quality						
Air Quality a) Potential to conflict with or obstruct implementation of the applicable air quality plan.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 3.3. Dust Control and Monitoring</i></p> <p>A. Dust Control during Abrasive Blasting</p> <ol style="list-style-type: none"> 1. Provide a containment system for the structure prior to beginning abrasive blasting operations. The system shall remain in place during the abrasive blasting operations and the painting of exterior surfaces. <p>B. Dust Control</p> <ol style="list-style-type: none"> 1. Contractor shall implement all necessary dust control measures, including but not limited to the following: <ol style="list-style-type: none"> a. All exposed surfaces with the potential of dust-generating shall be watered at least twice daily, or be covered with coarse rock, or as directed by the Engineer to reduce the potential for airborne dust from leaving the site. b. The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time, as appropriate. c. Cover all haul trucks entering/leaving the site and trim their loads as necessary. d. Using wet power vacuum street sweepers to: <ul style="list-style-type: none"> <i>Sweep all paved access road, parking areas and staging areas at the construction site daily or as often as necessary.</i> <i>Sweep public roads adjacent to the site at least twice daily or as often as necessary.</i> e. The use of dry power sweeping is prohibited. f. All trucks and equipment, including their tires, shall be washed off prior to leaving the site. g. Gravel or apply non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. h. Water and/or cover soil stockpiles daily. i. Site accesses to a distance of 100 feet from the paved road shall be treated with 12-inches layer of compacted coarse rock. j. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent. 	EBMUD and EBMUD's Contractors	EBMUD	During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Air Quality (cont.)						
Air Quality a) Potential to conflict with or obstruct implementation of the applicable air quality plan. (cont.)	<ul style="list-style-type: none"> k. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. l. Building pads shall be laid as soon as possible after grading. m. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. n. Wind breaks (e.g., fences) shall be installed on the windward sides(s) of actively disturbed areas of construction. Wind breaks should have a maximum 50 percent air porosity. o. All vehicle speeds shall be limited to fifteen (15) mph or less on the construction site and any adjacent unpaved roads. <p><i>Section 3.4. Emissions Control</i></p> <p>A. Air Quality and Emissions Control</p> <ul style="list-style-type: none"> 1. The Contractor shall ensure that line power is used instead of diesel generators at all construction sites where line power is available. 2. The Contractor shall ensure that for operation of any stationary, compression-ignition engines as part of construction, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards. 3. Fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) shall be electrically powered unless the Contractor submits documentation and receives approval from the Engineer that the use of such equipment is not practical, feasible, or available. All portable engines and equipment units used as part of construction shall be properly registered with the California Air Resources Board or otherwise permitted by the appropriate local air district, as required. 4. Contractor shall implement standard air emissions controls such as: <ul style="list-style-type: none"> a. Minimize the use of diesel generators where possible. b. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure (ATCM) Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points. c. Follow applicable regulations for fuel, fuel additives, and emission standards for stationary, diesel-fueled engines. 					

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Air Quality (cont.)						
Air Quality a) Potential to conflict with or obstruct implementation of the applicable air quality plan. (cont.)	<ul style="list-style-type: none"> d. Locate generators at least 100 feet away from adjacent homes and ball fields. e. Perform regular low-emission tune-ups on all construction equipment, particularly haul trucks and earthwork equipment. <p>5. Contractor shall implement the following measures to reduce greenhouse gas emissions from fuel combustion:</p> <ul style="list-style-type: none"> a. On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals. b. Construction equipment engines shall be maintained to manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. c. All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of Oxide of Nitrogen (NOx) and Particulate Matter (PM). d. Demolition debris shall be recycled for reuse to the extent feasible. See the Construction and Demolition Waste Disposal Plan paragraphs above for requirements on wood treated with preservatives. <p>B. Architectural Coatings</p> <ul style="list-style-type: none"> 1. Architectural coatings used shall comply with appropriate Volatile Organic Compound limits as established in the Bay Area Air Quality Management District's Regulation 8, Rule 3 and/or the San Joaquin Valley Air Pollution Control District's Regulation IV, Rule 4601, and any amendments thereto. 					
Air Quality b) Potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 1.3.E Dust Control and Monitoring Plan</i></p> <ul style="list-style-type: none"> 1. Submit a plan detailing the means and methods for controlling and monitoring dust generated by demolition and other work on the site for the Engineer's acceptance prior to any work at the jobsite. The plan shall comply with all applicable regulations including but not limited to the Bay Area Air Quality Management District (BAAQMD) visible emissions regulation and Public Nuisance Rule. The plan shall include items such as mitigation measures to control fugitive dust emissions generated by construction activities. The Plan shall outline best management practices for preventing dust emissions, provide guidelines for training of employees, and procedures to be used during operations and maintenance activities. The plan shall also include measures for the control of paint overspray generated during the painting of 	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Air Quality (cont.)						
Air Quality b) Potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation. (cont.)	2. exterior surfaces. The plan shall detail the equipment and methods used to monitor compliance with the plan. The handling and disposal of water used in compliance with the Dust Control Plan shall be addressed in the Water Control and Disposal Plan. 3. Containment, as described in Article 3.3, shall be utilized during any abrasive blasting of the exterior of structures. <i>Section 3.3.B Dust Control (Details as previously listed)</i> <i>Section 1.3.I Tuneup Logs</i> 1. The Contractor shall submit a log of required tune-ups for all construction equipment, particularly haul and delivery trucks, on a quarterly basis for review. <i>Section 3.4.A Air Quality and Emissions Control (Details as previously listed)</i>					
Air Quality d) Expose sensitive receptors to substantial pollutant concentrations.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Section 1.3.I Tune-up Logs, Section 3.3.B, Dust Control, and Section 3.4. Emissions Control (Details as previously listed)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Air Quality e) Create objectionable odors affecting a substantial number of people.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Section 1.3.I Tune-up Logs and Section 3.4.A Air Quality and Emissions Control (Details as previously listed)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Biological Resources						
Biological Resources a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 3.8, Protection of Birds Protected under the Migratory Treaty Act and Roosting Bats</i> A. The District will conduct biological reconnaissance in advance of construction and will conduct biologic monitoring during construction as necessary. B. Protected Species 1. If protected species or suitable habitat for protected species is found during biological reconnaissance surveys: a. Before beginning construction, all Contractor construction personnel are required to attend an environmental training program provided by the District of up to one-day for site supervisors, foreman and project managers, and up to 30-minutes for non-supervisory contractor personnel. The training program will be completed in person or by	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Biological Resources (cont.)						
<p>Biological Resources</p> <p>a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.</p> <p>(cont.)</p>	<p>watching a video at a District-designated location, conducted by a qualified biologist provided by the District. The program will discuss all sensitive habitats and sensitive species that may occur within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are identified to the District. Prior to accessing or performing construction work, all Contractor personnel shall:</p> <ol style="list-style-type: none"> 1) Sign a wallet card provided by the Engineer verifying that all Contractor construction personnel have attended the appropriate level of training relative to their position; have read and understood the contents of the _____; and shall comply with all project environmental requirements. 2) Display an environmental training hard hat decal (provided by the District after completion of the training) at all times. <p>b. Birds Protected under the Migratory Bird Treaty Act (MBTA):</p> <ol style="list-style-type: none"> 1) It is unlawful to pursue, hunt, take, capture, or kill any migratory bird without a permit issued by the U.S. Department of the Interior. 2) If construction commences between February 1 and August 31, during the nesting season, the District will conduct a preconstruction survey for nesting birds within 7 days prior to construction to ensure that no nest will be disturbed during construction. 3) If active nests of migratory bird species (listed in the MBTA) are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffer to avoid nest disturbance shall be constructed. The buffer size will be determined by the District in consultation with California Department of Fish and Wildlife (CDFW) and is based on the nest location, topography, cover and species' tolerance to disturbance. 4) If an avoidance buffer is not achievable, a qualified biologist provided by the District will monitor the nest(s) to document that no take of the nest (nest failure) has occurred. Active nests shall not be taken or destroyed under the MBTA and, for raptors, under the CDFW Code. If it is determined that construction activity is resulting in nest disturbance, work should cease immediately and the Contractor shall notify the Engineer who will consult with the qualified biologist and appropriate regulatory agencies. 					

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Biological Resources (cont.)						
<p>Biological Resources</p> <p>a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.</p> <p>(cont.)</p>	<p>5) If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the avoidance buffer for active nests may be removed. Nests initiated during construction (while significant disturbance from construction activities persist) may be presumed to be unaffected, and only a minimal buffer, determined by District's biologist, would be necessary.</p> <p>c. Roosting Bats:</p> <p>1) If construction commences between March 1 and July 31, during the bat maternity period, the District will conduct a preconstruction survey for roosting bats within two weeks prior to construction to ensure that no roosting bats will be disturbed during construction.</p> <p>2) If roosting surveys indicate potential occupation by a special-status bat species, and/or identify a large day roosting population or maternity roost by any bat species within 200 feet of a construction work area, a qualified biologist provided by the District will conduct focused day- and/or night-emergence surveys, as appropriate.</p> <p>3) If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from construction activities, an avoidance buffers shall be constructed. The buffer size will be determined by the District in consultation with CDFW.</p> <p>4) If a non-breeding bat roost is found in a structure scheduled for modification or removal, the bats shall be safety evicted, under the direction of a qualified biologist provided by the District in consultation with CDFW to ensure that the bats are not injured.</p> <p>5) If preconstruction surveys indicate that no roosting is present, or potential roosting habitat is unoccupied during the construction period, no further action is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during construction is presumed to be unaffected, and no buffer would be necessary.</p>					

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Biological Resources (cont.)						
Biological Resources e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Section 3.7, Protection of Native and Non-Native Protected Trees (Details as previously listed under Aesthetics)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	
Cultural Resources						
Cultural Resources b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 3.9, Protection of Cultural and Paleontological Resources</i> A. Confidentiality of Information on Cultural Resources 1. Prior to, or during the course of the Contractor's performance under this contract, the Contractor may obtain information as to the location and/or nature of certain cultural resources, including Native American artifacts and remains. This information may be provided to the Contractor by the District or a third party, or may be discovered directly by the Contractor through its performance under the contract. All such information shall be considered "Confidential Information" for the purposes of this Article. 2. The Contractor agrees that the Contractor, its subcontractors of any tiers, and their respective agents and employees shall not publish or disclose any Confidential Information to any person, unless specifically authorized in advance, in writing by the Engineer. 3. The indemnity obligations of Document 00 72 00 - General Conditions Article 4.7.5 shall apply to any breach of this Article. B. Conform to the requirements of statutes as they relate to the protection and preservation of cultural and paleontological resources. Unauthorized collection of prehistoric or historic artifacts or fossils along the Work Area, or at Work facilities, is strictly prohibited. C. Before beginning construction, all Contractor construction personnel shall attend a cultural resources training course provided by the District of up to two hours for site supervisors, foreman, project managers, and non-supervisory contractor personnel. The training program will be completed in person or by watching a video, at a District designated location, conducted by a qualified archaeologist provided by the District, or by District staff. The program will discuss cultural resources awareness within the project work limits, including the responsibilities of Contractor's construction personnel, applicable mitigation measures, confidentiality, and notification requirements. The Contractor is responsible for ensuring that all workers requiring training are	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Cultural Resources (cont.)						
<p>Cultural Resources b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5. (cont.)</p>	<p>identified to the District. Prior to accessing the construction site, or performing site work, all Contractor personnel shall:</p> <ol style="list-style-type: none"> 1. Sign an attendance sheet provided by the Engineer verifying that all Contractor construction personnel have attended the appropriate level of training; have read and understood the contents of the training; have read and understood the contents of the "Confidentiality of Information on Archaeological Resources" and shall comply with all project environmental requirements. <p>D. In the event that potential cultural or paleontological resources are discovered at the site of construction, the following procedures shall be instituted:</p> <ol style="list-style-type: none"> 1. Discovery of prehistoric or historic-era archaeological resources requires that all construction activities shall immediately cease at the location of discovery and within 100 feet of the discovery. <ol style="list-style-type: none"> a. The Contractor shall immediately notify the Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the Engineer, and shall not recommence work until authorized to do so by the Engineer. b. The District will retain a qualified archaeologist to inspect the findings within 24 hours of discovery. If it is determined that the Project could damage a historical resource as defined by CEQA (or a historic property as defined by the National Historic Preservation Act of 1966, as amended), construction shall cease in an area determined by the archaeologist until a management plan has been prepared, approved by the District, and implemented to the satisfaction of the archaeologist (and Native American representative if the resource is prehistoric, who shall be identified by the Native American Heritage Commission [NAHC]). In consultation with the District, the archaeologist (and Native American representative) will determine when construction can resume. 2. Discovery of human remains requires that all construction activities immediately cease at, and within 100 feet of the location of discovery. <ol style="list-style-type: none"> a. The Contractor shall immediately notify the Engineer who will engage a qualified archaeologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the Engineer, and shall not recommence work until authorized to do so by the Engineer. b. The District will contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage 					

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Cultural Resources (cont.)						
Cultural Resources b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5. (cont.)	<p>Commission (NAHC). The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the District for the appropriate means of treating the human remains and any associated funerary objects.</p> <p>3. Discovery of paleontological resources requires that all construction activities immediately cease at, and within 100 feet of the location of discovery.</p> <p>a. The Contractor shall immediately notify the Engineer who will engage a qualified paleontologist provided by the District to evaluate the find. The Contractor is responsible for stopping work and notifying the Engineer, and shall not recommence work until authorized to do so by the Engineer.</p> <p>b. The District will retain a qualified paleontologist to inspect the findings within 24 hours of discovery. The qualified paleontologist, in accordance with Society of Vertebrate Paleontology guidelines (Society of Vertebrate Paleontology 2010), will assess the nature and importance of the find and recommend appropriate salvage, treatment, and future monitoring and management. If it is determined that construction activities could damage a paleontological resource as defined by the Society of Vertebrate Paleontology guidelines (Society of Vertebrate Paleontology 2010), construction shall cease in an area determined by the paleontologist until a salvage, treatment, and future monitoring and management plan has been prepared, approved by the District, and implemented to the satisfaction of the paleontologist. In consultation with the paleontologist, the District will determine when construction can resume.</p> <p>E. If the District determines that the find requires further evaluation, at the direction of Engineer, the Contractor shall suspend all construction activities at the location of the find and within a larger radius, as required.</p>					
Cultural Resources c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Section 3.9, Protection of Cultural and Paleontological Resources (Details as previously listed)</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Cultural Resources d) Disturb any human remains, including those interred outside of formal cemeteries.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Section 3.9, Protection of Cultural and Paleontological Resources (Details as previously listed)</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Geology and Soils						
Geology and Soils a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; or landslides.	<p>EBMUD’s Engineering Standard Practice 550.1, Seismic Design Requirements and 512.1, Water Main and Services Design Criteria</p> <p>EBMUD uses two primary Engineering Standard Practices for the design of water pipelines in its distribution system to address geologic hazards. Engineering Standard Practice 512.1, Water Main and Services Design Criteria, establishes basic criteria for the design of water pipelines and establishes minimum requirements for pipeline construction materials. Engineering Standard Practice 550.1, Seismic Design Requirements, addresses seismic design of the pipelines to withstand seismic hazards, including fault rupture, ground shaking, liquefaction-related phenomena, landslides, seiches and tsunamis and requires that EBMUD establish project-specific seismic design criteria for pipelines with a diameter of greater than 12 inches.</p>	EBMUD and EBMUD’s Contractors	EBMUD	Prior to and During Construction	X	X
Geology and Soils b) Result in substantial soil erosion or the loss of topsoil.	<p>EBMUD’s Standard Construction Specification 01 35 44, Environmental Requirements</p> <p><i>Section 1.1.B, Site Activities</i></p> <ol style="list-style-type: none"> No debris including, but not limited to, demolition material, treated wood waste, stockpile leachate, soil, silt, sand, bark, slash, sawdust, asphalt, rubbish, paint, oil, cement, concrete or washings thereof, oil or petroleum products, or other organic or earthen materials from construction activities shall be allowed to enter into storm drains or surface waters or be placed where it may be washed by rainfall or runoff outside the construction limits. When operations are completed, excess materials or debris shall be removed from the work area as specified in the Construction and Demolition Waste Disposal Plan. Excess material shall be disposed of in locations approved by the Engineer consistent with all applicable legal requirements and disposal facility permits. Do not create a nuisance or pollution as defined in the California Water Code. Do not cause a violation of any applicable water quality standards for receiving waters adopted by the Regional Board or the State Water Resources Control Board, as required by the Clean Water Act. Clean up all spills and immediately notify the Engineer in the event of a spill. Stationary equipment such as motors, pumps, and generators, shall be equipped with drip pans. Divert or otherwise control surface water and waters flowing from existing projects, structures, or surrounding areas from coming onto the work and staging areas. The method of diversions or control shall be adequate to ensure the safety of stored materials and of personnel using these areas. Following completion of Work, ditches, dikes, or other ground alterations made by the Contractor shall be removed and the ground surfaces shall be returned to their former condition, or as near as practicable, in the Engineer’s opinion. 	EBMUD and EBMUD’s Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Geology and Soils (cont.)						
<p>Geology and Soils b) Result in substantial soil erosion or the loss of topsoil. (cont.)</p>	<p>7. Maintain construction sites to ensure that drainage from these sites will minimize erosion of stockpiled or stored materials and the adjacent native soil material.</p> <p>8. Furnish all labor, equipment, and means required and shall carry out effective measures wherever, and as often as necessary, to prevent Contractor's operations from causing visible dust emissions to leave the work areas. These measures shall include, but are not limited to, providing additional watering equipment, reducing vehicle speeds on haul roads, restricting traffic on haul roads, covering haul vehicles, and applying a dust palliative to well-traveled haul roads. The Contractor shall provide the specifications of the dust palliative for Engineer approval prior to use. The Contractor shall be responsible for damage resulting from dust originating from its operations. The dust abatement measures shall be continued for the duration of the Contract. Water the site in the morning and evening, and as often as necessary, and clean vehicles leaving the site as necessary to prevent the transportation of dust and dirt onto public roads. Dust control involving water shall be done in such a manner as to minimize waste and runoff from the site.</p> <p>9. Construction staging areas shall be graded, or otherwise protected with Best Management Practices (BMPs), to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters including wetlands, drainages, and creeks.</p> <p>10. All construction equipment shall be properly serviced and maintained in good operating condition to reduce emissions. Contractor shall make copies of equipment service logs available upon request.</p> <p>11. Any chemical or hazardous material used in the performance of the Work shall be handled, stored, applied, and disposed of in a manner consistent with all applicable federal, state, and local laws and regulations.</p> <p>12. Contaminated materials excavated and/or removed from the construction area shall be disposed of in a manner consistent with all applicable local, state, and federal laws and regulations.</p> <p><i>Section 1.3.A, Storm Water Management</i></p> <p>1. Construction General Permit</p> <p>a. The Contractor shall create a user account on the SWRCB's Storm Water Multi-Application & Report Tracking System (SMARTS). The Engineer will link the Contractor to the District's account as a Data Submitter. The Contractor shall prepare and upload to SMARTS Permit Registration Documents (PRDs), including, but not limited to, a Notice of Intent, a Site Specific Risk Assessment, a Site Map, and a Storm Water Pollution Prevention Plan (SWPPP) for the Engineer's review which meets the requirements of the SWRCB, for coverage under the General Construction Stormwater Permit (Order No. 2009-0009-DWQ) and amendments thereto.</p>					

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Geology and Soils (cont.)						
Geology and Soils b) Result in substantial soil erosion or the loss of topsoil. (cont.)	<p>Upon acceptance by the Engineer, the Engineer will electronically certify and file the PRDs to gain permit coverage and the Contractor shall submit the registration and the subsequent annual fees as required by the SWRCB.</p> <p>b. The Contractor shall be responsible for complying with the requirements of the Construction General Permit. The Contractor's responsibilities include, but are not limited to, providing qualified professionals as described in the permit to prepare and certify all permit-required documents/submittals and to implement effective stormwater/non-stormwater management practices, and conducting inspections and monitoring as required by the permit. The Contractor shall, in compliance with the permit, prepare and upload to SMARTS all required documents, photos, data, and/or reports (including the Annual Reports) and ensure permit coverage termination upon construction completion by preparing a Notice of Termination on SMARTS. The Contractor shall inform the Engineer when documents/reports are available on SMARTS for Engineer certification and submittal.</p> <p>2. Storm Water Pollution Prevention Plan</p> <p>a. Submit a Stormwater Pollution Prevention Plan that describes measures that shall be implemented to prevent the discharge of contaminated storm water runoff from the jobsite. Contaminants to be addressed include, but are not limited to, soil, sediment, concrete residue, pH less than 6.5 or greater than 8.5, and chlorine residual and all other contaminants known to exist at the jobsite location as described in Document 00 31 24 - Material Assessment Information.</p>					
Geology and Soils c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	<p>EBMUD Pumping Plant Design Guide</p> <p>EBMUD Engineering Standard Practice 550.1, Seismic Design Requirements</p> <p>Steel pipe having restrained joints shall be used. Other pipe materials and joints may be used provided it is demonstrated by tests and/or calculations that the pipe can accommodate the ground movements without rupture. Isolation valves shall be provided at points where the pipeline enters a slide area. By-pass connections or hydrants may be used to permit post-earthquake connection of temporary hoses across the slide area."</p> <p>Other measures specified in EBMUD Engineering Standard Practice 550.1 include:</p> <p>a. Setting the line back far enough from the up slope side of unstable slopes as to avoid being included in the probable zone of slippage;</p> <p>b. Setting lines back far enough from or low enough below the toe of unstable slopes as to avoid being included in the probable zone of slippage; and</p> <p>c. Providing buttress or retention structures or other measures to stabilize the slope.</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Geology and Soils (cont.)						
Geology and Soils d) Be located on expansive soil, as defined in Section 1803.5.3 of the Building Code, creating substantial risks to life or property?	EBMUD Pumping Plant Design Guide	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Greenhouse Gas Emissions						
Greenhouse Gas Emissions a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Section 3.4.A Air Quality and Emissions Control (Details as previously listed under Air Quality)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Hazards and Hazardous Materials						
Hazards and Hazardous Materials a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Hazards and Hazardous Materials b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Section 1.1.B, Site Activities (Details as previously listed under Geology and Soils) <i>Section 1.3.D, Spill Prevention and Response Plan</i> 1. Submit plan detailing the means and methods for preventing and controlling the spilling of known hazardous substances used on the jobsite or staging areas. The plan shall include a list of the hazardous substances proposed for use or generated by the Contractor on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the Engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; spill control, and spill cleanup. 2. Submit a Safety Data Sheet (SDS) for each hazardous substance proposed to be used prior to delivery of the material to the jobsite.	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Hazards and Hazardous Materials g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation (Details listed under Transportation and Traffic)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Hazards and Hazardous Materials (cont.)						
Hazards and Hazardous Materials h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	<p>EBMUD's Standard Construction Specifications 01 35 24, Project Safety Requirements</p> <p><i>Section 1.6, Fire Prevention and Protection</i></p> <p>A. Perform all Work in a fire-safe manner and supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.</p> <p>B. A long-handled, round-point shovel, or a fire extinguisher shall be kept at an accessible (unlocked) location on the construction site at all times.</p> <p>C. Earthmoving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildfire. Such equipment shall be maintained to ensure proper functioning of spark arrestor.</p> <p>D. For all work occurring between April 1 and December 1, or any other periods during which a high fire danger has been identified: 1. Equipment that could produce a spark, fire, or flame shall not be used within 10 feet of any flammable materials. 2. Portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials.</p> <p>E. Vegetation management for fire prevention and protection:</p> <p>1. Prior to and during construction:</p> <ol style="list-style-type: none"> Create and maintain a defensible space (100 feet or to the District property boundary, whichever is shorter) around construction site, construction ingress and egress sites through landscaping, mowing, disking, and/or spraying dry brush or native grasses to a height of 4-inches or less. Remove dead trees within 100-feet of construction site. Limb up trees within 100 feet of construction site so that no leafy foliage, twigs or branches are within 5-feet of the ground. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season. Ensure and maintain a 5-feet of vertical clearance between roof surfaces and portions of trees overhanging all structures within construction site, and keep roofs free of leaves, needles, twigs, and other combustible matter. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season. Keep all overhanging trees, shrubs, and other vegetation, or portions thereof, free of dead limbs, branches, and other combustible matter. 	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Hazards and Hazardous Materials (cont.)						
Hazards and Hazardous Materials h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (cont.)	<p>2. Neatly stack all combustible materials away from structures within construction site and have all combustible growth cleared 15-feet around the stack.</p> <p>F. During construction, maintain an unobstructed horizontal clearance at access drives of not less than the required width of the access drives, and an unobstructed vertical clearance of not less than 13 feet 6 inches above all roadways.</p> <p>G. The site address shall be clearly visible from the street.</p> <p>H. Any electronically-controlled gates shall have a KNOX key switch (or similar access per applicable local fire department regulations) allowing emergency access to the property.</p>					
Hydrology and Water Quality						
Hydrology and Water Quality a) Violate any water quality standards or waste discharge requirements. Hydrology and Water Quality f) Otherwise substantially degrade water quality.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Section 1.1.B, Site Activities (Details as previously listed under Geology and Soils)</p> <p>Section 1.3.A, Storm Water Management (Details as previously listed under Geology and Soils)</p> <p>Section 1.3.D, Spill Prevention and Response Plan (Details as previously listed under Hazards and Hazardous Materials)</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Hydrology and Water Quality e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Section 1.1.B, Site Activities (Details as previously listed under Geology and Soils)</p> <p>Section 1.3.A, Storm Water Management (Details as previously listed under Geology and Soils)</p> <p>Section 1.3.D, Spill Prevention and Response Plan (Details as previously listed under Hazards and Hazardous Materials)</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Hydrology and Water Quality i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	<p>Engineering Standard Practice 550.1, Seismic Design Requirements</p> <p>(Details as previously listed under Geology and Soils)</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Noise						
Noise a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<p>EBMUD's Standard Construction Specification 01 14 00, Work Restrictions <i>Section 1.4, Work Hours</i></p> <p>A. Work or activity of any kind shall be limited to the hours from 7:00 a.m. to 6:00 p.m. Monday through Friday with the exception of required outages, as described in Section 01 35 13.</p> <p>B. Work in excess of eight hours per day, work on Saturdays, work on Sundays, or work on District holidays requires prior consent of the Engineer and is subject to Cost of Overtime Construction Inspection. Contractor shall notify the Engineer no less than 96 hours prior to beginning scheduled work at night or on a Saturday, Sunday or District holidays.</p> <p>C. District holidays</p> <ol style="list-style-type: none"> 1. Holidays are: New Years Day Martin Luther King Day (3rd Monday in January) Lincoln's Birthday Washington's Birthday (3rd Monday in February) Chavez's Birthday Memorial Day (last Monday in May) Independence Day Labor Day (1st Monday in September) Admission Day Columbus Day (2nd Monday in October) Veteran's Day Thanksgiving Day and following Friday Christmas Day 2. When a holiday falls on Sunday, the following Monday shall be observed as the holiday. When a holiday falls on Saturday, the preceding Friday shall be observed as the holiday. <p>D. Truck operations (haul trucks and concrete delivery trucks) shall be limited to the daytime hours 9:00a.m. and 4:00 p.m.</p> <p><i>Section 1.8, Construction Noise</i></p> <p>A. Noise-generating activities greater than 90 dBA (impact construction such as concrete breaking, concrete crushing, tree grinding, etc) shall be limited to the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.</p> <p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements <i>Section 3.6, Noise Control</i></p> <p>A. Comply with sound control and noise level rules, regulations and ordinances as required herein and in the CEQA documents which apply to any work performed pursuant to the contract.</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction		X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Noise (cont.)						
Noise a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (cont.)	<p>B. Contractor is responsible for taking appropriate measures, including muffling of equipment, selecting quieter equipment, erecting noise barriers, modifying work operations, and other measures as needed to bring construction noise into compliance.</p> <p>C. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.</p> <p>D. Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks, as necessary.</p> <p>E. Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours specified in Section 01 14 00.</p> <p>F. Stationary noise sources (e.g. chippers, grinders, compressors) shall be located as far from sensitive receptors as possible. If they must be located near receptors, adequate muffling (with enclosures) shall be used. Enclosure opening or venting shall face away from sensitive receptors. Enclosures shall be designed by a registered engineer regularly involved in noise control analysis and design.</p> <p>G. Material stockpiles as well as maintenance/equipment staging and parking areas (all on-site) shall be located as far as practicable from residential receptors.</p> <p>H. If impact equipment (e.g., jack hammers, pavement breakers, rock drills etc.) is used during project construction, Contractor is responsible for taking appropriate measures, including but not limited to the following:</p> <ol style="list-style-type: none"> 1. Hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible. It is the Contractor's responsibility to implement any measures necessary to meet applicable noise requirements. 2. Impact construction including jackhammers, hydraulic backhoe, concrete crushing/recycling activities, vibratory pile drivers etc. shall be limited to the day time hours specified in Section 01 14 00. 					

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Noise (cont.)						
Noise a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (cont.)	<ol style="list-style-type: none"> 3. Erect temporary noise barriers or noise control blankets around the construction site, particularly along areas adjacent to residential buildings. 4. Utilize noise control blankets around the major noise sources to reduce noise emission from the site. 5. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example. 6. Limit the noisiest phases of construction to 10 work days at a time, where feasible. 7. Notify neighbors/occupants within 300 feet of project construction at least thirty days in advance of extreme noise generating activities about the estimated duration of the activity. 8. Noise Monitoring shall be conducted periodically during noise generating activities. Monitoring shall be conducted using a precision sound-level meter that is in conformance with the American National Standards Institute (ANSI) Standard S1.4, Specification for Sound Level Meters. Monitoring results shall be submitted weekly to the Engineer. 					
Noise b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Section 3.6, Noise Control (Details as previously listed) Section 3.5, <i>Vibration Control</i></p> <p>A. Limit surface vibration to no more than 0.5 in/sec PPV, measured at the nearest residence or other sensitive structure. See Section 01 14 00.</p> <p>B. Upon homeowner request, and with homeowner permission, the District will conduct preconstruction surveys of homes, sensitive structures and other areas of concern within 15 feet of continuous vibration-generating activities (i.e. vibratory compaction). Any new cracks or other changes in structures will be compared to preconstruction conditions and a determination made as to whether the proposed project could have caused such damage. In the event that the project is demonstrated to have caused the damage, the District will have the damage repaired to the pre-existing condition.</p> <p>EBMUD's Standard Construction Specification 01 14 00, Work Restrictions Section 1.4, Work Hours (Details as previously listed) Section 1.8, Construction Noise (Details as previously listed)</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Transportation and Traffic						
<p>Transportation and Traffic a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.</p> <p>Transportation and Traffic b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.</p>	<p>Standard Construction Specification 01 14 00, Work Restrictions Section 1.4, Work Hours (Details as previously listed in Noise)</p> <p>Standard Construction Specification 01 55 26, Traffic Regulation 1.2 SUBMITTALS</p> <p>A. Submit at least 15 calendar days prior to work a detailed traffic control plan, that is approved by all agencies having jurisdiction and that conforms to all requirements of these specifications and the most recently adopted edition of the California Manual on Uniform Control Devices. Traffic Control Plan shall include:</p> <ol style="list-style-type: none"> 1. Circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. 2. A description of emergency response vehicle access. If the road or area is completely blocked, preventing access by an emergency responder, a contingency plan must be included. 3. Procedures, to the extent feasible, to schedule construction of project elements to minimize overlapping construction phases that require truck hauling. 4. Designated Contractor staging areas for storage of all equipment and materials, in such a manner to minimize obstruction to traffic. 5. Locations for parking by construction workers. 	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
<p>Transportation and Traffic d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).</p>	<p>EBMUD's Standard Construction Specification 01 55.26, Traffic Regulation <i>Section 3.4, Temporary Traffic Control</i></p> <p>A. All traffic control devices shall conform to the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD), and as amended by the latest edition of the MUTCD California supplement. Electronic signage board with changeable message shall be placed on a street in both direction 2 weeks in advance.</p> <p>B. The Contractor shall replace within 72 hours, all traffic signal loop detectors damaged during construction. Any work that disturbs normal traffic signal operations and ensure proper temporary traffic control (lane shifts, lane closures, detours etc.) shall be coordinated with the agency having jurisdiction, at least 72 hours prior to commencing construction.</p>	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Transportation and Traffic (cont.)						
Transportation and Traffic d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (cont.)	C. A minimum of twelve (12) foot travel lanes must be maintained unless otherwise approved. D. Access to driveways will be maintained at all times unless other arrangements are made. E. All traffic control devices shall be removed from view when not in use. F. Before leaving a work area, ensure the area is left orderly. Trenches must be backfilled or plated during non-working hours. G. Sidewalks for pedestrians will remain open if safe for pedestrians. Alternate routes and signing will be provided if pedestrian routes are to be closed <i>Section 3.1, General</i> A. Except where public roads have been approved for closure, traffic shall be permitted to pass through designated traffic lanes with as little inconvenience and delay as possible. B. Install temporary traffic markings where required to direct the flow of traffic. Maintain the traffic markings for the duration of need and remove by abrasive blasting when no longer required. C. Convenient access to driveways and buildings in the vicinity of work shall be maintained as much as possible. Temporary approaches to, and crossing of, intersecting traffic lanes shall be provided and kept in good condition. D. When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic. E. Provide temporary signs as required by the traffic control plan and remove signs when no longer required. F. Haul routes for each construction phase shall be provided to all trucks serving the site during the construction period. G. For complete road closures, immediate emergency access to be provided if needed to emergency response vehicles. H. A minimum of twelve (12) foot travel lanes must be maintained unless otherwise approved.					
Transportation and Traffic e) Result in inadequate emergency access.	EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation Section 1.2, Submittals (Details as previously listed) Section 3.1, General (Details as previously listed)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Transportation and Traffic (cont.)						
Transportation and Traffic f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	EBMUD's Standard Construction Specification 01 55 26, Traffic Regulation Section 1.2, Submittals (Details as previously listed)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X
Tribal Cultural Resources						
Tribal Cultural Resources: Project cause a substantial adverse change in the significance of a tribal cultural resource a) Listed or eligible for listing in the California Register of Historic Resources, or in a local register of historic resources as defined in Public Resources Code section 5020.1(k). A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe	EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements Section 3.9, Protection of Cultural and Paleontological Resources (Details as previously listed under Cultural Resources)	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Utilities and Service Systems						
Utilities and Service Systems f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	<p>EBMUD's Standard Construction Specification 01 35 44, Environmental Requirements</p> <p>Section 1.3.C, Construction and Demolition Waste Disposal Plan</p> <p>C. Construction and Demolition Waste Disposal Plan:</p> <ol style="list-style-type: none"> 1. Prepare a Construction and Demolition Waste Disposal Plan and submit a copy of the plan for the Engineer's acceptance prior to disposing of any material (except for water wastes which shall be addressed in the Water Control and Disposal Plan). <ol style="list-style-type: none"> a. The plan shall identify how the Contractor will remove, handle, transport, and dispose of all materials required to be removed under this contract in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the disposal of removed materials. b. The Contractor shall procure the necessary permits required by the local, state, and federal agencies having jurisdiction over the handling, transportation, and disposal of construction and demolition waste. At a minimum, the following permits are required: <ol style="list-style-type: none"> 1) _____ 2) _____ 3) _____ c. Include a list of reuse facilities, recycling facilities and processing facilities that will be receiving recovered materials. d. Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations). e. Identify how the Contractor will comply with The California Department of Toxic Substances Control's (DTSC) Alternative Management Strategies (AMS) when handling and disposing of treated wood waste (TWW) in compliance with 22 CCR 66261.9.5. f. TWW records including but not limited to manifests, bills of lading should be submitted to the Engineer within 5 working days of off-haul. Records should include: (1) name and address of the TWW facility to which the TWW was sent; (2) estimated weight of TWW, or the weight of the TWW as measured by the receiving TWW facility; and (3) date of the shipment of TWW. (Cal. Code Regs., tit. 22, §§ 67386.8(a) and (e)(1)). g. List the permitted landfill, or other permitted disposal facilities, that will be accepting the disposed waste materials. 	EBMUD and EBMUD's Contractors	EBMUD	Prior to and During Construction	X	X

Impact Area	EBMUD Practices and Procedures ¹	Responsibility for Implementation	Responsibility for Monitoring and/or Enforcement	Timing of Implementation	Applicable Sites and Staging Areas	
					Site A2	Site A4
Utilities and Service Systems (cont.)						
Utilities and Service Systems f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. (cont.)	<ul style="list-style-type: none"> h. Identify each type of waste material to be reused, recycled or disposed of and estimate the amount, by weight. i. Plan shall include the sampling and analytical program for characterization of any waste material, as needed, prior to reuse, recycle or disposal. <ol style="list-style-type: none"> 2. Materials or wastes shall only be recycled, reused, reclaimed, or disposed of at facilities approved of by the District. 3. Submit permission to reuse, recycle, reclaim, or dispose of material from reuse, recycling, reclamation, or disposal site owner along with any other information needed by the District to evaluate the acceptability of the proposed reuse, recycling, or disposal site and obtain acceptance of the Engineer prior to removing any material from the project site. 4. All information pertinent to the characterization of the material or waste shall be disclosed to the District and the reuse, recycling, reclamation, or disposal facility. Submit copies of any profile forms and/or correspondence between the Contractor and the reuse, recycling, reclamation, or disposal facility. 5. Submit name and Environmental Laboratory Accreditation Program Certificate number of laboratory that will analyze samples for suspected hazardous substances. Include statement of laboratory's certified testing areas and analyses that laboratory is qualified to perform. Submit prior to any laboratory testing. 					

NOTES:

¹ In EBMUD Standard Specifications, "District" = EBMUD; "Engineer" = EBMUD Engineer; "Contractor" = EBMUD Contractor; "Work" = Scope of Work for the Project

APPENDIX B

Air Quality and Greenhouse Gas Emissions Estimates

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Site A2

CONSTRUCTION GHG EMISSIONS

CO ₂ e (tons)	1493.5268
Life of project (yrs)	40
Ave. annual emissions	37.33817 metric tons/year

OPERATIONAL GHG EMISSIONS

No. of pumps =	3	
Pump size =	350 hp =	261.0 kW
Hours used per day =	12 hours	
Electricity requirement of the Project		3429474 kW-hr/year

GHGs from Electricity Consumption			
GHG	Emission Factor (lb/kWh)	Electricity Consumption (kW-hr/year)	CO ₂ e* (metric tons)
CO ₂	0.45700	3,429,474	710.91
CH ₄	0.00003112	3,429,474	1.02
N ₂ O	0.0000567	3,429,474	27.34
Total =			739

NOTES:

1. The emission factor for CO₂ was obtained from PG&E, 2015. Emission factors for CH₄ and N₂O are USEPA's eGRID2012 Annual Emissions Output Rates
2. Proposed electricity consumption estimate for project based on data provided by SFPUC based on 7,200 AFY average annual recapture volume.
3. *Global Warming Potential for CH₄ = 21; GWP for N₂O = 310 (CCAR, 2009).

SOURCES:

1. California Climate Action Registry (CCAR), 2009. General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.
2. Pacific Gas and Electric Company (PG&E), 2015. Greenhouse Gas Emission Factors - Guidance for PG&E Customers, November 2015
3. USEPA, eGRID2012 Annual Emission Output Rates. Available at http://www.epa.gov/sites/production/files/2015-10/documents/egrid2012_ghgoutputrates_0.pdf

TOTAL CO₂e emissions (annualized construction + operation) = 777 metric tons per year

CONSTRUCTION EMISSIONS - CAP

Total number of construction workdays = 528

Tons per year				Pounds per day			
ROG	NO _x	PM-10	PM-2.5	ROG	NO _x	PM-10	PM-2.5
0.87	8.61	0.36	0.33	3.28	32.60	1.35	1.26

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

Site A2 - Pumping Plant and Pipeline Construction
Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.50	1000sqft	0.13	1,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	4			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics -

Land Use - Site A2 area

Construction Phase - Provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Grading - Provided by EBMUD

Trips and VMT - Provided by EBMUD

Construction Off-road Equipment Mitigation - Tier 4 equipment used for BACT

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
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tblConstructionPhase	NumDays	5.00	66.00
tblConstructionPhase	NumDays	1.00	65.00
tblConstructionPhase	NumDays	100.00	174.00
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tblConstructionPhase	PhaseEndDate	3/31/2019	9/30/2020
tblConstructionPhase	PhaseEndDate	3/31/2019	9/30/2019
tblConstructionPhase	PhaseEndDate	3/31/2019	12/31/2020
tblConstructionPhase	PhaseEndDate	3/31/2019	6/30/2019
tblConstructionPhase	PhaseStartDate	4/1/2019	6/1/2020

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tblConstructionPhase	PhaseStartDate	4/1/2019	7/1/2019
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tblGrading	AcresOfGrading	0.00	0.13
tblGrading	AcresOfGrading	0.00	0.13
tblGrading	AcresOfGrading	0.00	0.13
tblGrading	MaterialExported	0.00	200.00
tblLandUse	LotAcreage	0.03	0.13
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
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tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.50	0.50
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tblOffRoadEquipment	OffRoadEquipmentType		Welders
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tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs

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tbloffRoadEquipment	OffRoadEquipmentType		Plate Compactors
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tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	HaulingTripNumber	0.00	23.00
tblTripsAndVMT	PhaseName		Pipeline Construction

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tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
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tblTripsAndVMT	VendorTripNumber	0.00	4.00
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tblTripsAndVMT	WorkerTripNumber	28.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	4.00
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tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	10.00

2.0 Emissions Summary

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.4250	4.3455	2.8141	7.9400e-003	0.0174	0.1785	0.1959	4.8000e-003	0.1668	0.1716	0.0000	712.1138	712.1138	0.1962	0.0000	717.0187
2020	0.4140	4.0179	2.9678	8.2100e-003	0.0229	0.1668	0.1897	6.2500e-003	0.1557	0.1619	0.0000	719.9236	719.9236	0.2032	0.0000	725.0040
2021	0.0267	0.2442	0.1973	5.8000e-004	2.9300e-003	9.8300e-003	0.0128	7.9000e-004	9.0400e-003	9.8300e-003	0.0000	51.1262	51.1262	0.0151	0.0000	51.5041
Maximum	0.4250	4.3455	2.9678	8.2100e-003	0.0229	0.1785	0.1959	6.2500e-003	0.1668	0.1716	0.0000	719.9236	719.9236	0.2032	0.0000	725.0040

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1370	2.3486	4.2884	7.9400e-003	0.0174	0.0131	0.0305	4.8000e-003	0.0131	0.0179	0.0000	712.1130	712.1130	0.1962	0.0000	717.0179
2020	0.1410	2.4822	4.5280	8.2100e-003	0.0229	0.0150	0.0379	6.2500e-003	0.0149	0.0212	0.0000	719.9228	719.9228	0.2032	0.0000	725.0032
2021	0.0104	0.1694	0.3092	5.8000e-004	2.9300e-003	9.0000e-004	3.8300e-003	7.9000e-004	9.0000e-004	1.6800e-003	0.0000	51.1262	51.1262	0.0151	0.0000	51.5040
Maximum	0.1410	2.4822	4.5280	8.2100e-003	0.0229	0.0150	0.0379	6.2500e-003	0.0149	0.0212	0.0000	719.9228	719.9228	0.2032	0.0000	725.0032

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	66.69	41.91	-52.62	0.00	0.00	91.84	81.87	0.00	91.28	88.14	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
3	10-1-2019	12-31-2019	1.5170	0.8340
4	1-1-2020	3-31-2020	1.3595	0.8194
5	4-1-2020	6-30-2020	1.5975	0.9660
6	7-1-2020	9-30-2020	2.1066	1.2803
		Highest	2.1066	1.2803

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	5.7938	5.7938	2.1000e-004	7.0000e-005	5.8208
Mobile	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188
Waste						0.0000	0.0000		0.0000	0.0000	0.3776	0.0000	0.3776	0.0223	0.0000	0.9354
Water						0.0000	0.0000		0.0000	0.0000	0.1101	0.5460	0.6561	0.0113	2.7000e-004	1.0203
Total	9.3500e-003	0.0190	0.0315	1.2000e-004	8.6200e-003	2.6000e-004	8.8800e-003	2.3200e-003	2.5000e-004	2.5700e-003	0.4876	16.6481	17.1357	0.0343	3.4000e-004	18.0954

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	5.7938	5.7938	2.1000e-004	7.0000e-005	5.8208
Mobile	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188
Waste						0.0000	0.0000		0.0000	0.0000	0.3776	0.0000	0.3776	0.0223	0.0000	0.9354
Water						0.0000	0.0000		0.0000	0.0000	0.1101	0.5460	0.6561	0.0113	2.7000e-004	1.0203
Total	9.3500e-003	0.0190	0.0315	1.2000e-004	8.6200e-003	2.6000e-004	8.8800e-003	2.3200e-003	2.5000e-004	2.5700e-003	0.4876	16.6481	17.1357	0.0343	3.4000e-004	18.0954

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	4/1/2019	3/31/2019	5	0	
2	Demolition	Demolition	4/1/2019	3/31/2019	5	0	
3	Mobilization	Site Preparation	4/1/2019	6/30/2019	5	65	
4	Excavation/Site Work	Grading	7/1/2019	9/30/2019	5	66	
5	Building Construction (concrete work)	Building Construction	10/1/2019	5/31/2020	5	174	
6	Pipeline Construction	Trenching	5/1/2020	5/5/2020	5	3	
7	Building Construction	Building Construction	6/1/2020	9/30/2020	5	88	
8	Landscaping/Site Restoration	Paving	10/1/2020	12/31/2020	5	66	
9	Demobilization	Site Preparation	1/1/2021	3/31/2021	5	64	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,250; Non-Residential Outdoor: 750; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48
Landscaping/Site Restoration	Cement and Mortar Mixers	0	0.00	9	0.56
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Excavation/Site Work	Concrete/Industrial Saws	2	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Mobilization	Graders	0	0.00	187	0.41

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Landscaping/Site Restoration	Pavers	2	7.00	130	0.42
Landscaping/Site Restoration	Rollers	2	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Excavation/Site Work	Rubber Tired Dozers	0	0.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Excavation/Site Work	Tractors/Loaders/Backhoes	4	6.00	97	0.37
Landscaping/Site Restoration	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Mobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction (concrete work)	Cranes	0	0.00	231	0.29
Building Construction (concrete work)	Forklifts	1	6.00	89	0.20
Demobilization	Graders	0	0.00	187	0.41
Building Construction (concrete work)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Bore/Drill Rigs	1	8.00	221	0.50
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Welders	1	8.00	46	0.45
Building Construction	Off-Highway Trucks	1	8.00	402	0.38
Excavation/Site Work	Cranes	1	8.00	231	0.29
Excavation/Site Work	Excavators	1	8.00	158	0.38
Excavation/Site Work	Off-Highway Trucks	6	8.00	402	0.38
Excavation/Site Work	Bore/Drill Rigs	1	8.00	221	0.50
Landscaping/Site Restoration	Plate Compactors	3	8.00	8	0.43
Landscaping/Site Restoration	Off-Highway Trucks	3	8.00	402	0.38
Mobilization	Off-Highway Trucks	2	8.00	402	0.38
Building Construction (concrete work)	Bore/Drill Rigs	2	8.00	221	0.50
Building Construction (concrete work)	Off-Highway Trucks	3	8.00	402	0.38

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Building Construction (concrete work)	Pumps	2	8.00	84	0.74
Demobilization	Off-Highway Trucks	1	8.00	402	0.38
Pipeline Construction	Off-Highway Trucks	5	8.00	402	0.38
Pipeline Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pipeline Construction	Forklifts	2	8.00	89	0.20
Pipeline Construction	Plate Compactors	2	8.00	8	0.43
Pipeline Construction	Pavers	2	8.00	130	0.42
Pipeline Construction	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	16.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Site Work	15	10.00	20.00	23.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping/Site Restoration	11	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization	3	4.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (concrete work)	9	20.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	2	8.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Construction	15	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Clean Paved Roads

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3.2 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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3.2 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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3.3 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.3 Demolition - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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3.4 Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-005	0.0000	7.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0539	0.5456	0.3359	9.6000e-004		0.0222	0.0222		0.0204	0.0204	0.0000	86.5660	86.5660	0.0274	0.0000	87.2507
Total	0.0539	0.5456	0.3359	9.6000e-004	7.0000e-005	0.0222	0.0222	1.0000e-005	0.0204	0.0204	0.0000	86.5660	86.5660	0.0274	0.0000	87.2507

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0166	3.6800e-003	4.0000e-005	8.5000e-004	1.1000e-004	9.6000e-004	2.5000e-004	1.0000e-004	3.5000e-004	0.0000	3.4629	3.4629	2.1000e-004	0.0000	3.4682
Worker	4.9000e-004	3.8000e-004	3.7900e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9429	0.9429	3.0000e-005	0.0000	0.9436
Total	1.0800e-003	0.0170	7.4700e-003	5.0000e-005	1.8800e-003	1.2000e-004	2.0000e-003	5.2000e-004	1.1000e-004	6.3000e-004	0.0000	4.4058	4.4058	2.4000e-004	0.0000	4.4118

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3.4 Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-005	0.0000	7.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.2711	0.5337	9.6000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	86.5659	86.5659	0.0274	0.0000	87.2506
Total	0.0163	0.2711	0.5337	9.6000e-004	7.0000e-005	1.5700e-003	1.6400e-003	1.0000e-005	1.5700e-003	1.5800e-003	0.0000	86.5659	86.5659	0.0274	0.0000	87.2506

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0166	3.6800e-003	4.0000e-005	8.5000e-004	1.1000e-004	9.6000e-004	2.5000e-004	1.0000e-004	3.5000e-004	0.0000	3.4629	3.4629	2.1000e-004	0.0000	3.4682
Worker	4.9000e-004	3.8000e-004	3.7900e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9429	0.9429	3.0000e-005	0.0000	0.9436
Total	1.0800e-003	0.0170	7.4700e-003	5.0000e-005	1.8800e-003	1.2000e-004	2.0000e-003	5.2000e-004	1.1000e-004	6.3000e-004	0.0000	4.4058	4.4058	2.4000e-004	0.0000	4.4118

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3.5 Excavation/Site Work - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-005	0.0000	8.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2292	2.3072	1.5196	4.0200e-003		0.0987	0.0987		0.0920	0.0920	0.0000	359.4435	359.4435	0.1050	0.0000	362.0683
Total	0.2292	2.3072	1.5196	4.0200e-003	8.0000e-005	0.0987	0.0988	1.0000e-005	0.0920	0.0921	0.0000	359.4435	359.4435	0.1050	0.0000	362.0683

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	3.5700e-003	6.1000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.1000e-004	5.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.8899	0.8899	5.0000e-005	0.0000	0.8911
Vendor	2.9700e-003	0.0844	0.0187	1.8000e-004	4.3300e-003	5.4000e-004	4.8700e-003	1.2500e-003	5.2000e-004	1.7700e-003	0.0000	17.5808	17.5808	1.0800e-003	0.0000	17.6078
Worker	1.2500e-003	9.5000e-004	9.6200e-003	3.0000e-005	2.6100e-003	2.0000e-005	2.6300e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3935	2.3935	7.0000e-005	0.0000	2.3952
Total	4.3200e-003	0.0889	0.0289	2.2000e-004	7.1300e-003	5.7000e-004	7.7100e-003	1.9900e-003	5.5000e-004	2.5500e-003	0.0000	20.8641	20.8641	1.2000e-003	0.0000	20.8941

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3.5 Excavation/Site Work - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-005	0.0000	8.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0677	1.1819	2.2792	4.0200e-003		6.4500e-003	6.4500e-003		6.4500e-003	6.4500e-003	0.0000	359.4430	359.4430	0.1050	0.0000	362.0679
Total	0.0677	1.1819	2.2792	4.0200e-003	8.0000e-005	6.4500e-003	6.5300e-003	1.0000e-005	6.4500e-003	6.4600e-003	0.0000	359.4430	359.4430	0.1050	0.0000	362.0679

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	3.5700e-003	6.1000e-004	1.0000e-005	1.9000e-004	1.0000e-005	2.1000e-004	5.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.8899	0.8899	5.0000e-005	0.0000	0.8911
Vendor	2.9700e-003	0.0844	0.0187	1.8000e-004	4.3300e-003	5.4000e-004	4.8700e-003	1.2500e-003	5.2000e-004	1.7700e-003	0.0000	17.5808	17.5808	1.0800e-003	0.0000	17.6078
Worker	1.2500e-003	9.5000e-004	9.6200e-003	3.0000e-005	2.6100e-003	2.0000e-005	2.6300e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3935	2.3935	7.0000e-005	0.0000	2.3952
Total	4.3200e-003	0.0889	0.0289	2.2000e-004	7.1300e-003	5.7000e-004	7.7100e-003	1.9900e-003	5.5000e-004	2.5500e-003	0.0000	20.8641	20.8641	1.2000e-003	0.0000	20.8941

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3.6 Building Construction (concrete work) - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1319	1.3257	0.8899	2.5100e-003		0.0566	0.0566		0.0533	0.0533	0.0000	223.7410	223.7410	0.0615	0.0000	225.2780
Total	0.1319	1.3257	0.8899	2.5100e-003		0.0566	0.0566		0.0533	0.0533	0.0000	223.7410	223.7410	0.0615	0.0000	225.2780

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0591	0.0131	1.3000e-004	3.0300e-003	3.8000e-004	3.4100e-003	8.8000e-004	3.6000e-004	1.2400e-003	0.0000	12.3065	12.3065	7.6000e-004	0.0000	12.3255
Worker	2.5000e-003	1.9100e-003	0.0193	5.0000e-005	5.2200e-003	4.0000e-005	5.2600e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.7869	4.7869	1.4000e-004	0.0000	4.7903
Total	4.5800e-003	0.0610	0.0323	1.8000e-004	8.2500e-003	4.2000e-004	8.6700e-003	2.2700e-003	3.9000e-004	2.6600e-003	0.0000	17.0935	17.0935	9.0000e-004	0.0000	17.1158

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3.6 Building Construction (concrete work) - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0429	0.7287	1.4068	2.5100e-003		3.9900e-003	3.9900e-003		3.9900e-003	3.9900e-003	0.0000	223.7407	223.7407	0.0615	0.0000	225.2778
Total	0.0429	0.7287	1.4068	2.5100e-003		3.9900e-003	3.9900e-003		3.9900e-003	3.9900e-003	0.0000	223.7407	223.7407	0.0615	0.0000	225.2778

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0591	0.0131	1.3000e-004	3.0300e-003	3.8000e-004	3.4100e-003	8.8000e-004	3.6000e-004	1.2400e-003	0.0000	12.3065	12.3065	7.6000e-004	0.0000	12.3255
Worker	2.5000e-003	1.9100e-003	0.0193	5.0000e-005	5.2200e-003	4.0000e-005	5.2600e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.7869	4.7869	1.4000e-004	0.0000	4.7903
Total	4.5800e-003	0.0610	0.0323	1.8000e-004	8.2500e-003	4.2000e-004	8.6700e-003	2.2700e-003	3.9000e-004	2.6600e-003	0.0000	17.0935	17.0935	9.0000e-004	0.0000	17.1158

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.6 Building Construction (concrete work) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2009	1.9591	1.4234	4.1100e-003		0.0820	0.0820		0.0772	0.0772	0.0000	359.6510	359.6510	0.1002	0.0000	362.1567
Total	0.2009	1.9591	1.4234	4.1100e-003		0.0820	0.0820		0.0772	0.0772	0.0000	359.6510	359.6510	0.1002	0.0000	362.1567

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0889	0.0192	2.1000e-004	4.9600e-003	4.1000e-004	5.3800e-003	1.4400e-003	3.9000e-004	1.8300e-003	0.0000	19.9970	19.9970	1.1500e-003	0.0000	20.0257
Worker	3.7300e-003	2.7600e-003	0.0283	8.0000e-005	8.5400e-003	6.0000e-005	8.6000e-003	2.2700e-003	5.0000e-005	2.3300e-003	0.0000	7.5908	7.5908	2.0000e-004	0.0000	7.5957
Total	6.5700e-003	0.0916	0.0474	2.9000e-004	0.0135	4.7000e-004	0.0140	3.7100e-003	4.4000e-004	4.1600e-003	0.0000	27.5878	27.5878	1.3500e-003	0.0000	27.6215

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.6 Building Construction (concrete work) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0702	1.1925	2.3021	4.1100e-003		6.5200e-003	6.5200e-003		6.5200e-003	6.5200e-003	0.0000	359.6506	359.6506	0.1002	0.0000	362.1563
Total	0.0702	1.1925	2.3021	4.1100e-003		6.5200e-003	6.5200e-003		6.5200e-003	6.5200e-003	0.0000	359.6506	359.6506	0.1002	0.0000	362.1563

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0889	0.0192	2.1000e-004	4.9600e-003	4.1000e-004	5.3800e-003	1.4400e-003	3.9000e-004	1.8300e-003	0.0000	19.9970	19.9970	1.1500e-003	0.0000	20.0257
Worker	3.7300e-003	2.7600e-003	0.0283	8.0000e-005	8.5400e-003	6.0000e-005	8.6000e-003	2.2700e-003	5.0000e-005	2.3300e-003	0.0000	7.5908	7.5908	2.0000e-004	0.0000	7.5957
Total	6.5700e-003	0.0916	0.0474	2.9000e-004	0.0135	4.7000e-004	0.0140	3.7100e-003	4.4000e-004	4.1600e-003	0.0000	27.5878	27.5878	1.3500e-003	0.0000	27.6215

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.7 Pipeline Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.5700e-003	0.0731	0.0540	1.4000e-004		3.2500e-003	3.2500e-003		3.0000e-003	3.0000e-003	0.0000	11.9454	11.9454	3.8400e-003	0.0000	12.0414
Total	7.5700e-003	0.0731	0.0540	1.4000e-004		3.2500e-003	3.2500e-003		3.0000e-003	3.0000e-003	0.0000	11.9454	11.9454	3.8400e-003	0.0000	12.0414

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	7.1000e-004	1.5000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1587	0.1587	1.0000e-005	0.0000	0.1589
Worker	5.0000e-005	4.0000e-005	3.9000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1054	0.1054	0.0000	0.0000	0.1055
Total	7.0000e-005	7.5000e-004	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.2641	0.2641	1.0000e-005	0.0000	0.2644

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.7 Pipeline Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.2800e-003	0.0418	0.0797	1.4000e-004		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	11.9454	11.9454	3.8400e-003	0.0000	12.0414
Total	2.2800e-003	0.0418	0.0797	1.4000e-004		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	11.9454	11.9454	3.8400e-003	0.0000	12.0414

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	7.1000e-004	1.5000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1587	0.1587	1.0000e-005	0.0000	0.1589
Worker	5.0000e-005	4.0000e-005	3.9000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1054	0.1054	0.0000	0.0000	0.1055
Total	7.0000e-005	7.5000e-004	5.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.2641	0.2641	1.0000e-005	0.0000	0.2644

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3.8 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0914	0.8652	0.6685	1.6500e-003		0.0376	0.0376		0.0349	0.0349	0.0000	143.7242	143.7242	0.0450	0.0000	144.8499
Total	0.0914	0.8652	0.6685	1.6500e-003		0.0376	0.0376		0.0349	0.0349	0.0000	143.7242	143.7242	0.0450	0.0000	144.8499

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-004	0.0207	4.4600e-003	5.0000e-005	1.1600e-003	1.0000e-004	1.2500e-003	3.3000e-004	9.0000e-005	4.3000e-004	0.0000	4.6554	4.6554	2.7000e-004	0.0000	4.6621
Worker	2.4300e-003	1.8000e-003	0.0184	5.0000e-005	5.5700e-003	4.0000e-005	5.6000e-003	1.4800e-003	4.0000e-005	1.5200e-003	0.0000	4.9481	4.9481	1.3000e-004	0.0000	4.9513
Total	3.0900e-003	0.0225	0.0229	1.0000e-004	6.7300e-003	1.4000e-004	6.8500e-003	1.8100e-003	1.3000e-004	1.9500e-003	0.0000	9.6035	9.6035	4.0000e-004	0.0000	9.6134

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.8 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0275	0.5539	0.9819	1.6500e-003		4.5900e-003	4.5900e-003		4.5900e-003	4.5900e-003	0.0000	143.7240	143.7240	0.0450	0.0000	144.8497
Total	0.0275	0.5539	0.9819	1.6500e-003		4.5900e-003	4.5900e-003		4.5900e-003	4.5900e-003	0.0000	143.7240	143.7240	0.0450	0.0000	144.8497

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-004	0.0207	4.4600e-003	5.0000e-005	1.1600e-003	1.0000e-004	1.2500e-003	3.3000e-004	9.0000e-005	4.3000e-004	0.0000	4.6554	4.6554	2.7000e-004	0.0000	4.6621
Worker	2.4300e-003	1.8000e-003	0.0184	5.0000e-005	5.5700e-003	4.0000e-005	5.6000e-003	1.4800e-003	4.0000e-005	1.5200e-003	0.0000	4.9481	4.9481	1.3000e-004	0.0000	4.9513
Total	3.0900e-003	0.0225	0.0229	1.0000e-004	6.7300e-003	1.4000e-004	6.8500e-003	1.8100e-003	1.3000e-004	1.9500e-003	0.0000	9.6035	9.6035	4.0000e-004	0.0000	9.6134

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.9 Landscaping/Site Restoration - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1032	0.9972	0.7425	1.8700e-003		0.0433	0.0433		0.0399	0.0399	0.0000	163.5463	163.5463	0.0522	0.0000	164.8517
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1032	0.9972	0.7425	1.8700e-003		0.0433	0.0433		0.0399	0.0399	0.0000	163.5463	163.5463	0.0522	0.0000	164.8517

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	7.7600e-003	1.6700e-003	2.0000e-005	4.3000e-004	4.0000e-005	4.7000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.7458	1.7458	1.0000e-004	0.0000	1.7483
Worker	9.1000e-004	6.7000e-004	6.9100e-003	2.0000e-005	2.0900e-003	1.0000e-005	2.1000e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.8555	1.8555	5.0000e-005	0.0000	1.8567
Total	1.1600e-003	8.4300e-003	8.5800e-003	4.0000e-005	2.5200e-003	5.0000e-005	2.5700e-003	6.9000e-004	4.0000e-005	7.3000e-004	0.0000	3.6013	3.6013	1.5000e-004	0.0000	3.6050

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3.9 Landscaping/Site Restoration - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0302	0.5707	1.0849	1.8700e-003		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	163.5461	163.5461	0.0522	0.0000	164.8515
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0302	0.5707	1.0849	1.8700e-003		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	163.5461	163.5461	0.0522	0.0000	164.8515

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	7.7600e-003	1.6700e-003	2.0000e-005	4.3000e-004	4.0000e-005	4.7000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.7458	1.7458	1.0000e-004	0.0000	1.7483
Worker	9.1000e-004	6.7000e-004	6.9100e-003	2.0000e-005	2.0900e-003	1.0000e-005	2.1000e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.8555	1.8555	5.0000e-005	0.0000	1.8567
Total	1.1600e-003	8.4300e-003	8.5800e-003	4.0000e-005	2.5200e-003	5.0000e-005	2.5700e-003	6.9000e-004	4.0000e-005	7.3000e-004	0.0000	3.6013	3.6013	1.5000e-004	0.0000	3.6050

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3.10 Demobilization - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-005	0.0000	7.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2299	0.1882	5.2000e-004		9.7900e-003	9.7900e-003		9.0000e-003	9.0000e-003	0.0000	46.0361	46.0361	0.0149	0.0000	46.4083
Total	0.0255	0.2299	0.1882	5.2000e-004	7.0000e-005	9.7900e-003	9.8600e-003	1.0000e-005	9.0000e-003	9.0100e-003	0.0000	46.0361	46.0361	0.0149	0.0000	46.4083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-004	0.0137	2.9000e-003	4.0000e-005	8.4000e-004	3.0000e-005	8.7000e-004	2.4000e-004	3.0000e-005	2.7000e-004	0.0000	3.3532	3.3532	1.8000e-004	0.0000	3.3578
Worker	8.2000e-004	5.8000e-004	6.1000e-003	2.0000e-005	2.0200e-003	1.0000e-005	2.0400e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7369	1.7369	4.0000e-005	0.0000	1.7379
Total	1.2200e-003	0.0143	9.0000e-003	6.0000e-005	2.8600e-003	4.0000e-005	2.9100e-003	7.8000e-004	4.0000e-005	8.2000e-004	0.0000	5.0901	5.0901	2.2000e-004	0.0000	5.0958

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.10 Demobilization - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.0000e-005	0.0000	7.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1600e-003	0.1551	0.3002	5.2000e-004		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	46.0360	46.0360	0.0149	0.0000	46.4083
Total	9.1600e-003	0.1551	0.3002	5.2000e-004	7.0000e-005	8.6000e-004	9.3000e-004	1.0000e-005	8.6000e-004	8.7000e-004	0.0000	46.0360	46.0360	0.0149	0.0000	46.4083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-004	0.0137	2.9000e-003	4.0000e-005	8.4000e-004	3.0000e-005	8.7000e-004	2.4000e-004	3.0000e-005	2.7000e-004	0.0000	3.3532	3.3532	1.8000e-004	0.0000	3.3578
Worker	8.2000e-004	5.8000e-004	6.1000e-003	2.0000e-005	2.0200e-003	1.0000e-005	2.0400e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7369	1.7369	4.0000e-005	0.0000	1.7379
Total	1.2200e-003	0.0143	9.0000e-003	6.0000e-005	2.8600e-003	4.0000e-005	2.9100e-003	7.8000e-004	4.0000e-005	8.2000e-004	0.0000	5.0901	5.0901	2.2000e-004	0.0000	5.0958

4.0 Operational Detail - Mobile

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188
Unmitigated	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	10.46	1.98	1.02	23,054	23,054
Total	10.46	1.98	1.02	23,054	23,054

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.559358	0.040058	0.190549	0.109335	0.016678	0.005213	0.023344	0.044042	0.002152	0.002669	0.005545	0.000316	0.000739

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.6742	3.6742	1.7000e-004	3.0000e-005	3.6886
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.6742	3.6742	1.7000e-004	3.0000e-005	3.6886
NaturalGas Mitigated	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322
NaturalGas Unmitigated	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	39720	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322
Total		2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	39720	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322
Total		2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	12630	3.6742	1.7000e-004	3.0000e-005	3.6886
Total		3.6742	1.7000e-004	3.0000e-005	3.6886

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	12630	3.6742	1.7000e-004	3.0000e-005	3.6886
Total		3.6742	1.7000e-004	3.0000e-005	3.6886

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6561	0.0113	2.7000e-004	1.0203
Unmitigated	0.6561	0.0113	2.7000e-004	1.0203

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.346875 / 0	0.6561	0.0113	2.7000e-004	1.0203
Total		0.6561	0.0113	2.7000e-004	1.0203

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.346875 / 0	0.6561	0.0113	2.7000e-004	1.0203
Total		0.6561	0.0113	2.7000e-004	1.0203

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.3776	0.0223	0.0000	0.9354
Unmitigated	0.3776	0.0223	0.0000	0.9354

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1.86	0.3776	0.0223	0.0000	0.9354
Total		0.3776	0.0223	0.0000	0.9354

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1.86	0.3776	0.0223	0.0000	0.9354
Total		0.3776	0.0223	0.0000	0.9354

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

Site A2 - Pumping Plant and Pipeline Construction - Alameda County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Site A4

CONSTRUCTION GHG EMISSIONS

CO2e (tons) 1755.5143
 Life of project (yrs) 40
 Ave. annual emissions 43.8878575 metric tons/year

OPERATIONAL GHG EMISSIONS

No. of pumps = 3
 Pump size = 350 hp = 261.0 kW
 Hours used per day = 12 hours
 Electricity requirement of the Project 3429474.3 kW-hr/year

GHGs from Electricity Consumption			
GHG	Emission Factor (lb/kWh)	Electricity Consumption (kW-hr/year)	CO₂e* (metric tons)
CO ₂	0.45700	3,429,474	710.91
CH ₄	0.00003112	3,429,474	1.02
N ₂ O	0.0000567	3,429,474	27.34
Total =			739

NOTES:

1. The emission factor for CO₂ was obtained from PG&E, 2015. Emission factors for CH₄ and N₂O are USEPA's eGRID2012 Annual Emissions Output Rates
2. Proposed electricity consumption estimate for project based on data provided by SFPUC based on 7,200 AFY average annual recapture volume.
3. *Global Warming Potential for CH₄ = 21; GWP for N₂O = 310 (CCAR, 2009).

SOURCES:

1. California Climate Action Registry (CCAR), 2009. General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.
2. Pacific Gas and Electric Company (PG&E), 2015. Greenhouse Gas Emission Factors - Guidance for PG&E Customers, November 2015
3. USEPA, eGRID2012 Annual Emission Output Rates. Available at http://www.epa.gov/sites/production/files/2015-10/documents/egrid2012_ghgoutputrates_0.pdf

TOTAL CO2e emissions (annualized construction + operation) = 783 metric tons per year

CONSTRUCTION EMISSIONS - CAP

Total number of construction workdays = 523

Tons per year				Pounds per day			
ROG	NOx	Exhaust PM-10	Exhaust PM-2.5	ROG	NOx	PM-10	PM-2.5
1.03	10.17	0.42	0.39	3.93	38.90	1.62	1.51

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

Site A4 - Pumping Plant and Pipeline Construction
Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.50	1000sqft	0.10	1,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	63
Climate Zone	4			Operational Year	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

Project Characteristics -

Land Use - Site A4 area

Construction Phase - Provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Off-road Equipment - Equipment list provided by EBMUD

Grading - Provided by EBMUD

Trips and VMT - Provided by EBMUD

Construction Off-road Equipment Mitigation - Tier 4 equipment used for BACT

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	66.00
tblConstructionPhase	NumDays	5.00	66.00
tblConstructionPhase	NumDays	1.00	65.00
tblConstructionPhase	NumDays	100.00	174.00
tblConstructionPhase	NumDays	1.00	64.00
tblConstructionPhase	PhaseEndDate	3/31/2019	9/30/2020
tblConstructionPhase	PhaseEndDate	3/31/2019	9/30/2019
tblConstructionPhase	PhaseEndDate	3/31/2019	12/31/2020
tblConstructionPhase	PhaseEndDate	3/31/2019	6/30/2019
tblConstructionPhase	PhaseStartDate	4/1/2019	6/1/2020

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tblConstructionPhase	PhaseStartDate	4/1/2019	7/1/2019
tblConstructionPhase	PhaseStartDate	4/1/2019	10/1/2020
tblGrading	AcresOfGrading	0.00	0.10
tblGrading	AcresOfGrading	0.00	0.10
tblGrading	AcresOfGrading	0.00	0.10
tblGrading	MaterialExported	0.00	1,040.00
tblLandUse	LotAcreage	0.03	0.10
tblOffRoadEquipment	LoadFactor	0.50	0.50
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tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
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tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs

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tbloffRoadEquipment	OffRoadEquipmentType		Plate Compactors
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tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
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tbloffRoadEquipment	OffRoadEquipmentType		Pumps
tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tbloffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Pipeline Construction
tblOffRoadEquipment	PhaseName		Pipeline Construction
tblOffRoadEquipment	PhaseName		Pipeline Construction
tblOffRoadEquipment	PhaseName		Pipeline Construction
tblOffRoadEquipment	PhaseName		Pipeline Construction
tblOffRoadEquipment	PhaseName		Pipeline Construction
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2021
tblTripsAndVMT	HaulingTripNumber	0.00	115.00
tblTripsAndVMT	PhaseName		Pipeline Construction

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tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	1.00	16.00
tblTripsAndVMT	WorkerTripNumber	38.00	10.00
tblTripsAndVMT	WorkerTripNumber	28.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	4.00
tblTripsAndVMT	WorkerTripNumber	1.00	20.00
tblTripsAndVMT	WorkerTripNumber	5.00	8.00
tblTripsAndVMT	WorkerTripNumber	38.00	10.00

2.0 Emissions Summary

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.4254	4.3598	2.8165	7.9800e-003	0.0182	0.1786	0.1968	5.0200e-003	0.1668	0.1718	0.0000	715.6733	715.6733	0.1964	0.0000	720.5829
2020	0.5745	5.5677	4.1124	0.0111	0.0262	0.2352	0.2615	7.1500e-003	0.2187	0.2258	0.0000	976.3232	976.3232	0.2842	0.0000	983.4273
2021	0.0267	0.2442	0.1973	5.8000e-004	2.9200e-003	9.8300e-003	0.0128	7.9000e-004	9.0400e-003	9.8300e-003	0.0000	51.1262	51.1262	0.0151	0.0000	51.5041
Maximum	0.5745	5.5677	4.1124	0.0111	0.0262	0.2352	0.2615	7.1500e-003	0.2187	0.2258	0.0000	976.3232	976.3232	0.2842	0.0000	983.4273

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1374	2.3629	4.2908	7.9800e-003	0.0182	0.0132	0.0314	5.0200e-003	0.0131	0.0181	0.0000	715.6725	715.6725	0.1964	0.0000	720.5821
2020	0.1905	3.3756	6.2129	0.0111	0.0262	0.0197	0.0459	7.1500e-003	0.0197	0.0268	0.0000	976.3221	976.3221	0.2842	0.0000	983.4262
2021	0.0104	0.1694	0.3092	5.8000e-004	2.9200e-003	9.0000e-004	3.8200e-003	7.9000e-004	9.0000e-004	1.6800e-003	0.0000	51.1262	51.1262	0.0151	0.0000	51.5040
Maximum	0.1905	3.3756	6.2129	0.0111	0.0262	0.0197	0.0459	7.1500e-003	0.0197	0.0268	0.0000	976.3221	976.3221	0.2842	0.0000	983.4262

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	67.06	41.92	-51.74	0.00	0.00	92.03	82.78	0.00	91.47	88.56	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
3	10-1-2019	12-31-2019	1.5170	0.8340
4	1-1-2020	3-31-2020	1.3595	0.8194
5	4-1-2020	6-30-2020	1.5975	0.9660
6	7-1-2020	9-30-2020	2.1066	1.2803
		Highest	2.1066	1.2803

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	5.7938	5.7938	2.1000e-004	7.0000e-005	5.8208
Mobile	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188
Waste						0.0000	0.0000		0.0000	0.0000	0.3776	0.0000	0.3776	0.0223	0.0000	0.9354
Water						0.0000	0.0000		0.0000	0.0000	0.1101	0.5460	0.6561	0.0113	2.7000e-004	1.0203
Total	9.3500e-003	0.0190	0.0315	1.2000e-004	8.6200e-003	2.6000e-004	8.8800e-003	2.3200e-003	2.5000e-004	2.5700e-003	0.4876	16.6481	17.1357	0.0343	3.4000e-004	18.0954

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	5.7938	5.7938	2.1000e-004	7.0000e-005	5.8208
Mobile	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188
Waste						0.0000	0.0000		0.0000	0.0000	0.3776	0.0000	0.3776	0.0223	0.0000	0.9354
Water						0.0000	0.0000		0.0000	0.0000	0.1101	0.5460	0.6561	0.0113	2.7000e-004	1.0203
Total	9.3500e-003	0.0190	0.0315	1.2000e-004	8.6200e-003	2.6000e-004	8.8800e-003	2.3200e-003	2.5000e-004	2.5700e-003	0.4876	16.6481	17.1357	0.0343	3.4000e-004	18.0954

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	4/1/2019	3/31/2019	5	0	
2	Building Construction	Building Construction	6/1/2020	9/30/2020	5	88	
3	Demolition	Demolition	4/1/2019	3/31/2019	5	0	
4	Excavation/Site Work	Grading	7/1/2019	9/30/2019	5	66	
5	Landscaping/Site Restoration	Paving	10/1/2020	12/31/2020	5	66	
6	Mobilization	Site Preparation	4/1/2019	6/30/2019	5	65	
7	Building Construction (concrete work)	Building Construction	10/1/2019	5/31/2020	5	174	
8	Demobilization	Site Preparation	1/1/2021	3/31/2021	5	64	
9	Pipeline Construction	Trenching	5/1/2020	7/31/2020	5	66	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,250; Non-Residential Outdoor: 750; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48
Landscaping/Site Restoration	Cement and Mortar Mixers	0	0.00	9	0.56
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Excavation/Site Work	Concrete/Industrial Saws	2	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Mobilization	Graders	0	0.00	187	0.41

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Landscaping/Site Restoration	Pavers	2	7.00	130	0.42
Landscaping/Site Restoration	Rollers	2	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Excavation/Site Work	Rubber Tired Dozers	0	0.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Excavation/Site Work	Tractors/Loaders/Backhoes	4	6.00	97	0.37
Landscaping/Site Restoration	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Mobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction (concrete work)	Cranes	0	0.00	231	0.29
Building Construction (concrete work)	Forklifts	1	6.00	89	0.20
Demobilization	Graders	0	0.00	187	0.41
Building Construction (concrete work)	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Bore/Drill Rigs	1	8.00	221	0.50
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Welders	1	8.00	46	0.45
Building Construction	Off-Highway Trucks	1	8.00	402	0.38
Excavation/Site Work	Cranes	1	8.00	231	0.29
Excavation/Site Work	Excavators	1	8.00	158	0.38
Excavation/Site Work	Off-Highway Trucks	6	8.00	402	0.38
Excavation/Site Work	Bore/Drill Rigs	1	8.00	221	0.50
Landscaping/Site Restoration	Plate Compactors	3	8.00	8	0.43
Landscaping/Site Restoration	Off-Highway Trucks	3	8.00	402	0.38
Mobilization	Off-Highway Trucks	2	8.00	402	0.38
Building Construction (concrete work)	Bore/Drill Rigs	2	8.00	221	0.50
Building Construction (concrete work)	Off-Highway Trucks	3	8.00	402	0.38

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Building Construction (concrete work)	Pumps	2	8.00	84	0.74
Demobilization	Off-Highway Trucks	1	8.00	402	0.38
Pipeline Construction	Off-Highway Trucks	5	8.00	402	0.38
Pipeline Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pipeline Construction	Forklifts	2	8.00	89	0.20
Pipeline Construction	Plate Compactors	2	8.00	8	0.43
Pipeline Construction	Pavers	2	8.00	130	0.42
Pipeline Construction	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	16.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Site Work	15	10.00	20.00	115.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping/Site Restoration	11	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mobilization	3	4.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction (concrete work)	9	20.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demobilization	2	8.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline Construction	15	10.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Clean Paved Roads

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3.2 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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3.2 Architectural Coating - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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3.3 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0914	0.8652	0.6685	1.6500e-003		0.0376	0.0376		0.0349	0.0349	0.0000	143.7242	143.7242	0.0450	0.0000	144.8499
Total	0.0914	0.8652	0.6685	1.6500e-003		0.0376	0.0376		0.0349	0.0349	0.0000	143.7242	143.7242	0.0450	0.0000	144.8499

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-004	0.0207	4.4600e-003	5.0000e-005	1.1600e-003	1.0000e-004	1.2500e-003	3.3000e-004	9.0000e-005	4.3000e-004	0.0000	4.6554	4.6554	2.7000e-004	0.0000	4.6621
Worker	2.4300e-003	1.8000e-003	0.0184	5.0000e-005	5.5700e-003	4.0000e-005	5.6000e-003	1.4800e-003	4.0000e-005	1.5200e-003	0.0000	4.9481	4.9481	1.3000e-004	0.0000	4.9513
Total	3.0900e-003	0.0225	0.0229	1.0000e-004	6.7300e-003	1.4000e-004	6.8500e-003	1.8100e-003	1.3000e-004	1.9500e-003	0.0000	9.6035	9.6035	4.0000e-004	0.0000	9.6134

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3.3 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0275	0.5539	0.9819	1.6500e-003		4.5900e-003	4.5900e-003		4.5900e-003	4.5900e-003	0.0000	143.7240	143.7240	0.0450	0.0000	144.8497
Total	0.0275	0.5539	0.9819	1.6500e-003		4.5900e-003	4.5900e-003		4.5900e-003	4.5900e-003	0.0000	143.7240	143.7240	0.0450	0.0000	144.8497

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-004	0.0207	4.4600e-003	5.0000e-005	1.1600e-003	1.0000e-004	1.2500e-003	3.3000e-004	9.0000e-005	4.3000e-004	0.0000	4.6554	4.6554	2.7000e-004	0.0000	4.6621
Worker	2.4300e-003	1.8000e-003	0.0184	5.0000e-005	5.5700e-003	4.0000e-005	5.6000e-003	1.4800e-003	4.0000e-005	1.5200e-003	0.0000	4.9481	4.9481	1.3000e-004	0.0000	4.9513
Total	3.0900e-003	0.0225	0.0229	1.0000e-004	6.7300e-003	1.4000e-004	6.8500e-003	1.8100e-003	1.3000e-004	1.9500e-003	0.0000	9.6035	9.6035	4.0000e-004	0.0000	9.6134

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.4 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.4 Demolition - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.5 Excavation/Site Work - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2292	2.3072	1.5196	4.0200e-003		0.0987	0.0987		0.0920	0.0920	0.0000	359.4435	359.4435	0.1050	0.0000	362.0683
Total	0.2292	2.3072	1.5196	4.0200e-003	1.1000e-004	0.0987	0.0988	1.0000e-005	0.0920	0.0921	0.0000	359.4435	359.4435	0.1050	0.0000	362.0683

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2000e-004	0.0179	3.0500e-003	5.0000e-005	9.7000e-004	6.0000e-005	1.0400e-003	2.7000e-004	6.0000e-005	3.3000e-004	0.0000	4.4495	4.4495	2.3000e-004	0.0000	4.4552
Vendor	2.9700e-003	0.0844	0.0187	1.8000e-004	4.3300e-003	5.4000e-004	4.8700e-003	1.2500e-003	5.2000e-004	1.7700e-003	0.0000	17.5808	17.5808	1.0800e-003	0.0000	17.6078
Worker	1.2500e-003	9.5000e-004	9.6200e-003	3.0000e-005	2.6100e-003	2.0000e-005	2.6300e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3935	2.3935	7.0000e-005	0.0000	2.3952
Total	4.7400e-003	0.1032	0.0313	2.6000e-004	7.9100e-003	6.2000e-004	8.5400e-003	2.2100e-003	6.0000e-004	2.8100e-003	0.0000	24.4237	24.4237	1.3800e-003	0.0000	24.4582

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.5 Excavation/Site Work - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0677	1.1819	2.2792	4.0200e-003		6.4500e-003	6.4500e-003		6.4500e-003	6.4500e-003	0.0000	359.4430	359.4430	0.1050	0.0000	362.0679
Total	0.0677	1.1819	2.2792	4.0200e-003	1.1000e-004	6.4500e-003	6.5600e-003	1.0000e-005	6.4500e-003	6.4600e-003	0.0000	359.4430	359.4430	0.1050	0.0000	362.0679

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.2000e-004	0.0179	3.0500e-003	5.0000e-005	9.7000e-004	6.0000e-005	1.0400e-003	2.7000e-004	6.0000e-005	3.3000e-004	0.0000	4.4495	4.4495	2.3000e-004	0.0000	4.4552
Vendor	2.9700e-003	0.0844	0.0187	1.8000e-004	4.3300e-003	5.4000e-004	4.8700e-003	1.2500e-003	5.2000e-004	1.7700e-003	0.0000	17.5808	17.5808	1.0800e-003	0.0000	17.6078
Worker	1.2500e-003	9.5000e-004	9.6200e-003	3.0000e-005	2.6100e-003	2.0000e-005	2.6300e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3935	2.3935	7.0000e-005	0.0000	2.3952
Total	4.7400e-003	0.1032	0.0313	2.6000e-004	7.9100e-003	6.2000e-004	8.5400e-003	2.2100e-003	6.0000e-004	2.8100e-003	0.0000	24.4237	24.4237	1.3800e-003	0.0000	24.4582

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.6 Landscaping/Site Restoration - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1032	0.9972	0.7425	1.8700e-003		0.0433	0.0433		0.0399	0.0399	0.0000	163.5463	163.5463	0.0522	0.0000	164.8517
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1032	0.9972	0.7425	1.8700e-003		0.0433	0.0433		0.0399	0.0399	0.0000	163.5463	163.5463	0.0522	0.0000	164.8517

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	7.7600e-003	1.6700e-003	2.0000e-005	4.3000e-004	4.0000e-005	4.7000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.7458	1.7458	1.0000e-004	0.0000	1.7483
Worker	9.1000e-004	6.7000e-004	6.9100e-003	2.0000e-005	2.0900e-003	1.0000e-005	2.1000e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.8555	1.8555	5.0000e-005	0.0000	1.8567
Total	1.1600e-003	8.4300e-003	8.5800e-003	4.0000e-005	2.5200e-003	5.0000e-005	2.5700e-003	6.9000e-004	4.0000e-005	7.3000e-004	0.0000	3.6013	3.6013	1.5000e-004	0.0000	3.6050

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.6 Landscaping/Site Restoration - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0302	0.5707	1.0849	1.8700e-003		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	163.5461	163.5461	0.0522	0.0000	164.8515
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0302	0.5707	1.0849	1.8700e-003		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	163.5461	163.5461	0.0522	0.0000	164.8515

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5000e-004	7.7600e-003	1.6700e-003	2.0000e-005	4.3000e-004	4.0000e-005	4.7000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.7458	1.7458	1.0000e-004	0.0000	1.7483
Worker	9.1000e-004	6.7000e-004	6.9100e-003	2.0000e-005	2.0900e-003	1.0000e-005	2.1000e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.8555	1.8555	5.0000e-005	0.0000	1.8567
Total	1.1600e-003	8.4300e-003	8.5800e-003	4.0000e-005	2.5200e-003	5.0000e-005	2.5700e-003	6.9000e-004	4.0000e-005	7.3000e-004	0.0000	3.6013	3.6013	1.5000e-004	0.0000	3.6050

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.7 Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0539	0.5456	0.3359	9.6000e-004		0.0222	0.0222		0.0204	0.0204	0.0000	86.5660	86.5660	0.0274	0.0000	87.2507
Total	0.0539	0.5456	0.3359	9.6000e-004	5.0000e-005	0.0222	0.0222	1.0000e-005	0.0204	0.0204	0.0000	86.5660	86.5660	0.0274	0.0000	87.2507

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0166	3.6800e-003	4.0000e-005	8.5000e-004	1.1000e-004	9.6000e-004	2.5000e-004	1.0000e-004	3.5000e-004	0.0000	3.4629	3.4629	2.1000e-004	0.0000	3.4682
Worker	4.9000e-004	3.8000e-004	3.7900e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9429	0.9429	3.0000e-005	0.0000	0.9436
Total	1.0800e-003	0.0170	7.4700e-003	5.0000e-005	1.8800e-003	1.2000e-004	2.0000e-003	5.2000e-004	1.1000e-004	6.3000e-004	0.0000	4.4058	4.4058	2.4000e-004	0.0000	4.4118

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.7 Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0163	0.2711	0.5337	9.6000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	86.5659	86.5659	0.0274	0.0000	87.2506
Total	0.0163	0.2711	0.5337	9.6000e-004	5.0000e-005	1.5700e-003	1.6200e-003	1.0000e-005	1.5700e-003	1.5800e-003	0.0000	86.5659	86.5659	0.0274	0.0000	87.2506

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0166	3.6800e-003	4.0000e-005	8.5000e-004	1.1000e-004	9.6000e-004	2.5000e-004	1.0000e-004	3.5000e-004	0.0000	3.4629	3.4629	2.1000e-004	0.0000	3.4682
Worker	4.9000e-004	3.8000e-004	3.7900e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9429	0.9429	3.0000e-005	0.0000	0.9436
Total	1.0800e-003	0.0170	7.4700e-003	5.0000e-005	1.8800e-003	1.2000e-004	2.0000e-003	5.2000e-004	1.1000e-004	6.3000e-004	0.0000	4.4058	4.4058	2.4000e-004	0.0000	4.4118

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.8 Building Construction (concrete work) - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1319	1.3257	0.8899	2.5100e-003		0.0566	0.0566		0.0533	0.0533	0.0000	223.7410	223.7410	0.0615	0.0000	225.2780
Total	0.1319	1.3257	0.8899	2.5100e-003		0.0566	0.0566		0.0533	0.0533	0.0000	223.7410	223.7410	0.0615	0.0000	225.2780

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0591	0.0131	1.3000e-004	3.0300e-003	3.8000e-004	3.4100e-003	8.8000e-004	3.6000e-004	1.2400e-003	0.0000	12.3065	12.3065	7.6000e-004	0.0000	12.3255
Worker	2.5000e-003	1.9100e-003	0.0193	5.0000e-005	5.2200e-003	4.0000e-005	5.2600e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.7869	4.7869	1.4000e-004	0.0000	4.7903
Total	4.5800e-003	0.0610	0.0323	1.8000e-004	8.2500e-003	4.2000e-004	8.6700e-003	2.2700e-003	3.9000e-004	2.6600e-003	0.0000	17.0935	17.0935	9.0000e-004	0.0000	17.1158

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.8 Building Construction (concrete work) - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0429	0.7287	1.4068	2.5100e-003		3.9900e-003	3.9900e-003		3.9900e-003	3.9900e-003	0.0000	223.7407	223.7407	0.0615	0.0000	225.2778
Total	0.0429	0.7287	1.4068	2.5100e-003		3.9900e-003	3.9900e-003		3.9900e-003	3.9900e-003	0.0000	223.7407	223.7407	0.0615	0.0000	225.2778

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0800e-003	0.0591	0.0131	1.3000e-004	3.0300e-003	3.8000e-004	3.4100e-003	8.8000e-004	3.6000e-004	1.2400e-003	0.0000	12.3065	12.3065	7.6000e-004	0.0000	12.3255
Worker	2.5000e-003	1.9100e-003	0.0193	5.0000e-005	5.2200e-003	4.0000e-005	5.2600e-003	1.3900e-003	3.0000e-005	1.4200e-003	0.0000	4.7869	4.7869	1.4000e-004	0.0000	4.7903
Total	4.5800e-003	0.0610	0.0323	1.8000e-004	8.2500e-003	4.2000e-004	8.6700e-003	2.2700e-003	3.9000e-004	2.6600e-003	0.0000	17.0935	17.0935	9.0000e-004	0.0000	17.1158

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.8 Building Construction (concrete work) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2009	1.9591	1.4234	4.1100e-003		0.0820	0.0820		0.0772	0.0772	0.0000	359.6510	359.6510	0.1002	0.0000	362.1567
Total	0.2009	1.9591	1.4234	4.1100e-003		0.0820	0.0820		0.0772	0.0772	0.0000	359.6510	359.6510	0.1002	0.0000	362.1567

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0889	0.0192	2.1000e-004	4.9600e-003	4.1000e-004	5.3800e-003	1.4400e-003	3.9000e-004	1.8300e-003	0.0000	19.9970	19.9970	1.1500e-003	0.0000	20.0257
Worker	3.7300e-003	2.7600e-003	0.0283	8.0000e-005	8.5400e-003	6.0000e-005	8.6000e-003	2.2700e-003	5.0000e-005	2.3300e-003	0.0000	7.5908	7.5908	2.0000e-004	0.0000	7.5957
Total	6.5700e-003	0.0916	0.0474	2.9000e-004	0.0135	4.7000e-004	0.0140	3.7100e-003	4.4000e-004	4.1600e-003	0.0000	27.5878	27.5878	1.3500e-003	0.0000	27.6215

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.8 Building Construction (concrete work) - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0702	1.1925	2.3021	4.1100e-003		6.5200e-003	6.5200e-003		6.5200e-003	6.5200e-003	0.0000	359.6506	359.6506	0.1002	0.0000	362.1563
Total	0.0702	1.1925	2.3021	4.1100e-003		6.5200e-003	6.5200e-003		6.5200e-003	6.5200e-003	0.0000	359.6506	359.6506	0.1002	0.0000	362.1563

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0889	0.0192	2.1000e-004	4.9600e-003	4.1000e-004	5.3800e-003	1.4400e-003	3.9000e-004	1.8300e-003	0.0000	19.9970	19.9970	1.1500e-003	0.0000	20.0257
Worker	3.7300e-003	2.7600e-003	0.0283	8.0000e-005	8.5400e-003	6.0000e-005	8.6000e-003	2.2700e-003	5.0000e-005	2.3300e-003	0.0000	7.5908	7.5908	2.0000e-004	0.0000	7.5957
Total	6.5700e-003	0.0916	0.0474	2.9000e-004	0.0135	4.7000e-004	0.0140	3.7100e-003	4.4000e-004	4.1600e-003	0.0000	27.5878	27.5878	1.3500e-003	0.0000	27.6215

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.9 Demobilization - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2299	0.1882	5.2000e-004		9.7900e-003	9.7900e-003		9.0000e-003	9.0000e-003	0.0000	46.0361	46.0361	0.0149	0.0000	46.4083
Total	0.0255	0.2299	0.1882	5.2000e-004	5.0000e-005	9.7900e-003	9.8400e-003	1.0000e-005	9.0000e-003	9.0100e-003	0.0000	46.0361	46.0361	0.0149	0.0000	46.4083

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-004	0.0137	2.9000e-003	4.0000e-005	8.4000e-004	3.0000e-005	8.7000e-004	2.4000e-004	3.0000e-005	2.7000e-004	0.0000	3.3532	3.3532	1.8000e-004	0.0000	3.3578
Worker	8.2000e-004	5.8000e-004	6.1000e-003	2.0000e-005	2.0200e-003	1.0000e-005	2.0400e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7369	1.7369	4.0000e-005	0.0000	1.7379
Total	1.2200e-003	0.0143	9.0000e-003	6.0000e-005	2.8600e-003	4.0000e-005	2.9100e-003	7.8000e-004	4.0000e-005	8.2000e-004	0.0000	5.0901	5.0901	2.2000e-004	0.0000	5.0958

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.9 Demobilization - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1600e-003	0.1551	0.3002	5.2000e-004		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	46.0360	46.0360	0.0149	0.0000	46.4083
Total	9.1600e-003	0.1551	0.3002	5.2000e-004	5.0000e-005	8.6000e-004	9.1000e-004	1.0000e-005	8.6000e-004	8.7000e-004	0.0000	46.0360	46.0360	0.0149	0.0000	46.4083

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-004	0.0137	2.9000e-003	4.0000e-005	8.4000e-004	3.0000e-005	8.7000e-004	2.4000e-004	3.0000e-005	2.7000e-004	0.0000	3.3532	3.3532	1.8000e-004	0.0000	3.3578
Worker	8.2000e-004	5.8000e-004	6.1000e-003	2.0000e-005	2.0200e-003	1.0000e-005	2.0400e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7369	1.7369	4.0000e-005	0.0000	1.7379
Total	1.2200e-003	0.0143	9.0000e-003	6.0000e-005	2.8600e-003	4.0000e-005	2.9100e-003	7.8000e-004	4.0000e-005	8.2000e-004	0.0000	5.0901	5.0901	2.2000e-004	0.0000	5.0958

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.10 Pipeline Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1665	1.6073	1.1872	3.0000e-003		0.0716	0.0716		0.0659	0.0659	0.0000	262.7982	262.7982	0.0845	0.0000	264.9117
Total	0.1665	1.6073	1.1872	3.0000e-003		0.0716	0.0716		0.0659	0.0659	0.0000	262.7982	262.7982	0.0845	0.0000	264.9117

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-004	0.0155	3.3400e-003	4.0000e-005	8.7000e-004	7.0000e-005	9.4000e-004	2.5000e-004	7.0000e-005	3.2000e-004	0.0000	3.4915	3.4915	2.0000e-004	0.0000	3.4966
Worker	1.1400e-003	8.4000e-004	8.6300e-003	3.0000e-005	2.6100e-003	2.0000e-005	2.6300e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3194	2.3194	6.0000e-005	0.0000	2.3209
Total	1.6400e-003	0.0164	0.0120	7.0000e-005	3.4800e-003	9.0000e-005	3.5700e-003	9.4000e-004	9.0000e-005	1.0300e-003	0.0000	5.8110	5.8110	2.6000e-004	0.0000	5.8175

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

3.10 Pipeline Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0501	0.9196	1.7532	3.0000e-003		4.8500e-003	4.8500e-003		4.8500e-003	4.8500e-003	0.0000	262.7978	262.7978	0.0845	0.0000	264.9114
Total	0.0501	0.9196	1.7532	3.0000e-003		4.8500e-003	4.8500e-003		4.8500e-003	4.8500e-003	0.0000	262.7978	262.7978	0.0845	0.0000	264.9114

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0000e-004	0.0155	3.3400e-003	4.0000e-005	8.7000e-004	7.0000e-005	9.4000e-004	2.5000e-004	7.0000e-005	3.2000e-004	0.0000	3.4915	3.4915	2.0000e-004	0.0000	3.4966
Worker	1.1400e-003	8.4000e-004	8.6300e-003	3.0000e-005	2.6100e-003	2.0000e-005	2.6300e-003	6.9000e-004	2.0000e-005	7.1000e-004	0.0000	2.3194	2.3194	6.0000e-005	0.0000	2.3209
Total	1.6400e-003	0.0164	0.0120	7.0000e-005	3.4800e-003	9.0000e-005	3.5700e-003	9.4000e-004	9.0000e-005	1.0300e-003	0.0000	5.8110	5.8110	2.6000e-004	0.0000	5.8175

4.0 Operational Detail - Mobile

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188
Unmitigated	2.5000e-003	0.0170	0.0298	1.1000e-004	8.6200e-003	1.1000e-004	8.7300e-003	2.3200e-003	1.0000e-004	2.4200e-003	0.0000	10.3082	10.3082	4.2000e-004	0.0000	10.3188

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	10.46	1.98	1.02	23,054	23,054
Total	10.46	1.98	1.02	23,054	23,054

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.559358	0.040058	0.190549	0.109335	0.016678	0.005213	0.023344	0.044042	0.002152	0.002669	0.005545	0.000316	0.000739

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.6742	3.6742	1.7000e-004	3.0000e-005	3.6886
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.6742	3.6742	1.7000e-004	3.0000e-005	3.6886
NaturalGas Mitigated	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322
NaturalGas Unmitigated	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	39720	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322
Total		2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	39720	2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322
Total		2.1000e-004	1.9500e-003	1.6400e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1196	2.1196	4.0000e-005	4.0000e-005	2.1322

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	12630	3.6742	1.7000e-004	3.0000e-005	3.6886
Total		3.6742	1.7000e-004	3.0000e-005	3.6886

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	12630	3.6742	1.7000e-004	3.0000e-005	3.6886
Total		3.6742	1.7000e-004	3.0000e-005	3.6886

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.6400e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6561	0.0113	2.7000e-004	1.0203
Unmitigated	0.6561	0.0113	2.7000e-004	1.0203

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.346875 / 0	0.6561	0.0113	2.7000e-004	1.0203
Total		0.6561	0.0113	2.7000e-004	1.0203

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.346875 / 0	0.6561	0.0113	2.7000e-004	1.0203
Total		0.6561	0.0113	2.7000e-004	1.0203

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.3776	0.0223	0.0000	0.9354
Unmitigated	0.3776	0.0223	0.0000	0.9354

Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1.86	0.3776	0.0223	0.0000	0.9354
Total		0.3776	0.0223	0.0000	0.9354

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1.86	0.3776	0.0223	0.0000	0.9354
Total		0.3776	0.0223	0.0000	0.9354

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Site A4 - Pumping Plant and Pipeline Construction - Alameda County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

APPENDIX C

Potential to Occur Table and Special Status Species List

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APPENDIX C
LISTED AND SPECIAL-STATUS SPECIES CONSIDERED FOR DERWA SRVRWP PUMP STATION R3000 PROJECT

Name	Listing Status	General Habitat Requirements	Occurrence	Potential for Species Occurrence Within the Survey Area
Invertebrates				
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE/--	Vernal pools.	Endemic to the grasslands of the northern two-thirds of the Central Valley	Absent. Habitat is not present in Study Area.
Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>)	FE/--	Vernal pools or other areas capable of ponding water seasonally	Endemic to the eastern margin of the Central Coast mountains in seasonally astatic grassland vernal pools	Absent. Habitat is not present in Study Area.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT/--	Grassland vernal pools.	East San Francisco Bay including Livermore area.	Absent. Habitat is not present in Study Area.
San Bruno elfin butterfly (<i>Incisalia mossil bayensis</i>)	FE/--	Valley & foothill grassland	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County.	Absent. Habitat is not present in Study Area.
Amphibians				
California tiger salamander (<i>Ambystoma californiense</i>)	FT/ CT	Vernal or temporary pools in annual grasslands, or open stages of woodlands. Typically adults use mammal burrows.	The species occurs from Petaluma in Sonoma County, east through the Central Valley to Yolo and Sacramento Counties south to Tulare County, and from the San Francisco Bay south to Santa Barbara County. Most Central Valley populations have been extirpated, and any remaining populations likely occur in the surrounding foothills.	Low Potential. Unsuitable habitat in Study Areas.
California red-legged frog (<i>Rana draytonii</i>)	FT/ CT	Freshwater pools, ponds, reservoirs, and slow-moving streams with overhanging vegetation. Also found in woods adjacent to streams. Requires permanent or ephemeral water sources and needs pools of >0.5 m depth for breeding.	Historical range is Sacramento Valley east into the Sierra Nevada foothills.	Moderate Potential. Site A2 is less than 100 feet from the west branch of Alamo Creek, which could provide suitable migrating habitat for CRLF. Non-native grasslands in the vicinity of Crow Canyon Road and Lilac Ridge Road Study Areas unlikely to support migrating CRLF due to human disturbance and lack of aquatic habitat. The nearest occurrence of this species was documented approximately 2.5 east of the Study Area in a large detention pond.
Foothill yellow-legged frog (<i>Rana boylei</i>)	--/CSC	Breeds and overwinters in and near cobbled streams with permanent water	Nearest occurrences are associated with rocky, perennial streams, greater than 5 miles from Study Area and are historical.	Absent. Habitat is not present in Study Area.
Fish				
Steelhead-California Coast ESU (<i>Oncorhynchus mykiss</i>)	FT/--	Aquatic streams and drainages.	Drainages of San Francisco and San Pablo Bays, central Calif. Coastal drainages.	Absent. Habitats not present within the Study Area, which are also isolated from this species known range.

LISTED AND SPECIAL-STATUS SPECIES CONSIDERED FOR DERWA SRVRWP PUMP STATION R3000 PROJECT (CONTINUED)

Name	Listing Status	General Habitat Requirements	Occurrence	Potential for Species Occurrence Within the Survey Area
Reptiles				
Western pond turtle (<i>Emys marmorata</i>)	--/CSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation <6,000' in elevation. Require basking sites and upland habitat for egg laying (sandy banks and open, grassy fields)	Western California including coast ranges and the Central Valley.	Low potential. Suitable habitat not present within Study Area.
Alameda whipsnake (<i>Masticophis lateralis euryxanthus</i>)	FT/CT	Coastal ranges, in chaparral and riparian habitat and adjacent grasslands	Limited to coastal scrub and oak communities of East Bay in Contra Costa, Alameda, and parts of San Joaquin and Santa Clara Counties.	Low potential. Alameda whipsnake has a low potential to occur due to lack of primary habitat in in the study areas and surrounding open space, in addition to the occurrence of routine mowing in Lilac Ridge Rd Study Area. Primary habitat is chaparral or coastal scrub vegetation, interspersed with other native vegetation types and rock lands.
Birds				
Cooper's hawk (<i>Accipiter cooperii</i>)	CDFW §3503.5	Forests, woodlands, and fields. Will also inhabit trees in suburban areas in parks and neighborhoods.	Widespread across California and the United States.	Moderate potential. A common raptor; open habitat areas exist nearby the proposed project sites that could support this raptor. Large trees adjacent to projects sites may provide nesting habitat.
Sharp-shinned hawk (<i>Accipiter striatus</i>)	CDFW §3503.5	Forests and forest edges. Require dense forests for breeding.	Widespread across California and the United States.	Low potential. Suitable habitat not present within Study Area.
Tricolored blackbird (<i>Agelaius tricolor</i>)	--/CCE	Nests in freshwater marshes with dense stands of cattails or bulrushes, occasionally in willows, thistles, mustard, blackberry brambles, and dense shrubs and grains. Requires open water, protected areas for nests, foraging habitat with insects.	Sacramento-San Joaquin River Delta, Monterey and Marin counties, and coastal lagoons from Sonoma to San Diego Counties during winter. Large breeding colonies occur in Central Valley.	Low potential. Breeding habitat does not exist in Study Area or nearby.
Burrowing owl (<i>Athene cunicularia</i>)	BCC/CSC (burrowing sites)	Nests and forages in low-growing grasslands with burrowing mammals	Interior areas of San Francisco Bay, with larger numbers in Alameda, Contra Costa, and Santa Clara counties.	Moderate potential. Although routine mowing activities and exposure to human disturbance is routine in Lilac Ridge Road Study Area, mammal burrows present in the existing Reservoir R200 site (Staging Area 2), which could provide suitable habitat for burrowing owl (BUOW). Potential foraging and nesting habitat could be found near proposed Site A4 and Staging Area 2.
Prairie falcon (<i>Falco mexicanus</i>)	BCC/WL (nesting)	Inhabits hills, canyons, and mountainous areas with grasslands; nests on cliffs or abandoned raptor nests.	Valley and foothill grassland. Nest site is typically on a ledge of a cliff, in a recessed site, protected by an overhang of rock.	Low potential. Nesting not expected in Study Areas. Routine mowing indicates the non-native grasslands in Lilac Ridge Rd Study Area are considered low-quality habitat for prairie. Local occurrence information for the prairie falcon is suppressed by agencies due to species sensitivity (CDFW, 2018).

LISTED AND SPECIAL-STATUS SPECIES CONSIDERED FOR DERWA SRVRWP PUMP STATION R3000 PROJECT (CONTINUED)

Name	Listing Status	General Habitat Requirements	Occurrence	Potential for Species Occurrence Within the Survey Area
Birds (Continued)				
Red-tailed hawk (<i>Buteo jamaicensis</i>)	CDFW §3503.5	Occupies numerous types of open habitat including desert, scrublands, grasslands, roadsides, fields and pastures. Commonly found at field edges and perched on fences, poles, and trees. Nests in tall trees.	Widespread across California and the United States.	Moderate potential. Common raptor. Open habitat areas exist nearby the project site that could support this raptor. Large trees adjacent to projects sites may provide nesting habitat.
Swainson's hawk (<i>Buteo swainsoni</i>)	--/CT	Summer resident; breeds in lower Sacramento and San Joaquin valleys, the Klamath Basin, and Butte Valley.	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields	Moderate potential. Trees near West Alamo Creek could provide nesting habitat for Swainson's hawk.
White-tailed kite (<i>Elanus leucurus</i>)	FP	Nests in shrubs and trees adjacent to grasslands, forages over grasslands and agricultural lands	Widespread across California and the United States.	Low Potential. Trees near West Alamo Creek provide nesting opportunity. All other sites lack suitable nesting habitat and are too disturbed for this sensitive species.
American kestrel (<i>Falco sparverius</i>)	CDFW §3503.5	Open areas such as meadows, grasslands, and open woodlands. Also utilize human modified habitat such as parks, agricultural fields, and suburban areas. Nest in pre-existing cavities.	Widespread across California and the United States.	Low potential. Suitable nesting cavities do not occur within Study Area but adjacent open areas can support foraging.
Mammals				
Pallid bat (<i>Antrozous pallidus</i>)	CSC	Grasslands, shrublands, woodlands, and forests. Common in arid regions with rocky outcroppings, particularly near water. Roosts in rock crevices, buildings, and under bridges.	British Columbia to west Texas, Baja, and Central Mexico	Low potential. Study Area with potential roosting habitat is located adjacent to highly utilized roadway which would deter this species from roosting.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	--/CSC	Throughout California in a wide variety of habitats. Roosts in the open, hanging from walls & ceilings.	Throughout California in a wide variety of habitats.	Low potential. Study Area with potential roosting habitat is located adjacent to highly utilized roadway which would deter this species from roosting.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE/CT	Undeveloped grasslands and agricultural land.	Patchily distributed in the Diablo Range and south to Bakersfield	Low potential. Unsuitable habitat in Study Areas. Nearest occurrence of species is considered historical and occurred roughly two miles north of Crow Canyon Rd. Study Area on Blackhawk Road. Development has significantly degraded movement and dispersal corridors for young kit foxes. Successful movement of kit foxes between remaining core habitat areas is becoming increasingly unlikely. ¹

¹ Center for Biological Diversity, 2018. San Joaquin Kit Fox Natural History. Available online: https://www.biologicaldiversity.org/species/mammals/San_Joaquin_kit_fox/natural_history.html. Accessed on April 26, 2018.

LISTED AND SPECIAL-STATUS SPECIES CONSIDERED FOR DERWA SRVRWP PUMP STATION R3000 PROJECT (CONTINUED)

Name	Listing Status	General Habitat Requirements	Occurrence	Potential for Species Occurrence Within the Survey Area
Mammals (continued)				
Hoary bat (<i>Lasiurus cinereus</i>)	WBWG Medium	Forested habitats and trees along clearing edges. Roosts in trees with dense foliage. Forages in trees and along streams and lake shores.	Widespread across California	Low potential. Study Area with potential roosting habitat is located adjacent to highly utilized roadway which would deter this species from roosting.
Yuma myotis (<i>Myotis yumanensis</i>)	WBWG Low	Groups roost in caves, trees, cliff crevices, mines, and under bridges. Forages over water and thus lives near ponds and rivers.	Widespread across California	Low potential. No suitable habitat present in Study Area.
Plants				
Palmate-bractedbird's-beak (<i>Chloropyron palmatum</i>)	FE/SE/1B.1	Chenopod scrub, valley and foothill grasslands	Endemic to California. Occurrences in Central Valley north of Sacramento and west of Yuba City. Local populations limited to alkali scalds at the Springtown Alkali Preserve.	Absent. Alkaline habitat not present on project site or in immediate vicinity.
Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>)	--/--1B.2	Alkali playa, valley and foothill grassland (adobo clay), vernal pool, wetland.	Endemic to California. Occurrences in greater San Francisco Bay Area including Livermore area, Napa River, and from Suisun Bay north to greater Davis area.	Absent. Alkaline habitat not present on project site or in immediate vicinity.
Brittlescale (<i>Atriplex depressa</i>)	--/--1B.2	Alkali playa, chenopod scrub, meadow and seep, valley and foothill grassland, vernal pool, wetland.	Endemic to California. Occurrences in greater San Francisco Bay Area including Livermore area. Occurs in Contra Costa, Solano, Colusa, Fresno, Glenn, Kern, Merced, Stanislaus, Tulare, and Yolo Counties.	Absent. Alkaline habitat not present on project site or in immediate vicinity.
Lesser saltscale (<i>Atriplex minuscula</i>)	--/--1B.1	Chenopod scrub, alkali playa, valley and foothill grassland.	Endemic to California. Occurrences in Livermore area. Also occurs in Alameda, Butte, Fresno, Kern, Madera, Merced, and Tulare Counties.	Absent. Alkaline habitat not present on project site or in immediate vicinity.
Diablo helianthella (<i>Helianthella castanea</i>)	FSC/--1B.2	Forest, woodland, chaparral, coastal scrub, riparian woodland, and grassland; usually in chaparral/oak woodland ecotone.	San Francisco Bay Area mostly around Mount Diablo.	Absent. Study Area does not contain preferred habitat and mostly consists of highly disturbed dominated with non-native vegetation. Perennial plant, not observed on project site.
Prostrate navarretia (<i>Navarretia prostrata</i>)	/--/1B.1	In mesic, alkali areas of coastal scrub and grassland, particularly vernal pools	Scattered distribution from San Francisco Bay Area, through Transverse Ranges and Peninsular Ranges, to south California border.	Absent. Alkaline habitat not present on project sites or in immediate vicinity.
Congdon's tarplant (<i>Centromadia parryi</i> ssp. <i>congdonii</i>)	--/--1B.1	Valley and foothill grassland.	Endemic to California. Occurrences in San Francisco Bay Area from the South Bay northeast to the East Bay including Dublin/Pleasanton/Livermore area and northeast to Brentwood area.	Low potential. Site supports species associated with grassland habitat; however, this plant was not observed on site.

LISTED AND SPECIAL-STATUS SPECIES CONSIDERED FOR DERWA SRVRWP PUMP STATION R3000 PROJECT (CONTINUED)

Name	Listing Status	General Habitat Requirements	Occurrence	Potential for Species Occurrence Within the Survey Area
Plants (cont.)				
Saline clover (<i>Trifolium hydrophilum</i>)	--/--/1B.2	Marshes and swamps, mesic and alkaline valley and foothill grasslands (mesic, alkaline), vernal pools.	Greater San Francisco Bay Area including the North Bay, the East Bay, the South Bay around San Jose, east to Sacramento and Stockton, and areas around Salinas, and Monterey.	Absent. Saline habitat not present on project sites or in immediate vicinity.
Caper-fruited tropidocarpum (<i>Tropidocarpum capparideum</i>)	--/--/1B.1	Valley and foothill grassland alkaline hills.	Endemic to California. Occurs in Central Valley around Fresno, in Central Coast near San Luis Obispo and north of Lake San Antonio.	Absent. Occurrences in region are historical.

Status Codes:

USFWS (U.S. Fish and Wildlife Service)

FE = Listed as Endangered by the Federal Government

FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.

CDFW (California Department of Fish and Wildlife)

CE = Listed as Endangered by the State of California

CCE = Candidate Endangered by the State of California

CT = Listed as Threatened by the State of California

CSC = California Species of Special Concern

FP = Fully Protected

§3503.5 = CDFW Fish and Game Code Section §3503.5; this code protects nesting raptors and birds of prey

California Native Plant Society (CNPS):

List 1A: Plants presumed extinct.

List 1B: Plants rare, threatened, or endangered in California and elsewhere.

List 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere.

List 3: Plants about which more information is needed – a review list.

List 4: Plants of limited distribution – a watch list.

0.1 = Seriously endangered in California.

0.2 = Fairly endangered in California.

0.3 = Not very endangered in California.

Potential to Occur Categories:

Unlikely = The project areas and/or immediate vicinities do not support suitable habitat for a particular species. Project areas are outside of the species known range.

Low Potential = The project areas and/or immediate vicinities only provide limited habitat. In addition, the species' known range may be outside of the project areas.

Moderate Potential = The project areas and/or immediate vicinities provide suitable habitat.

High Potential = The project areas and/or immediate vicinity provide ideal habitat conditions.

SOURCES: CDFW, 2018; CNPS, 2018; USFWS, 2018.



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS OR Antioch South (3712187) OR Clayton (3712188) OR Diablo (3712178) OR Dublin (3712168) OR Hayward (3712261) OR Livermore (3712167) OR Tassajara (3712177) OR Walnut Creek (3712281) OR Las Trampas Ridge (3712271))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Accipiter striatus</i> sharp-shinned hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,180 1,180	22 S:1	1	0	0	0	0	0	1	0	1	0	0
<i>Agelaius tricolor</i> tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	314 759	951 S:8	0	1	2	0	0	5	7	1	8	0	0
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	50 1,950	1178 S:130	11	54	14	2	14	35	45	85	116	5	9
<i>Amsinckia grandiflora</i> large-flowered fiddleneck	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	1,150 1,800	8 S:4	0	0	0	0	3	1	3	1	1	0	3
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	G2G3 S2S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	892 1,600	86 S:5	0	1	0	0	0	4	0	5	5	0	0
<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	G2 S2	None None		900 900	15 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Anniella pulchra</i> northern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	360 450	333 S:2	1	0	0	0	1	0	1	1	1	1	0
<i>Anomobryum julaceum</i> slender silver moss	G5? S2	None None	Rare Plant Rank - 4.2		13 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Antrozous pallidus</i> pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	30 780	411 S:11	0	0	0	0	0	11	10	1	11	0	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Aquila chrysaetos</i> golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	155 1,360	319 S:6	5	1	0	0	0	0	3	3	6	0	0
<i>Arctostaphylos auriculata</i> Mt. Diablo manzanita	G2 S2	None None	Rare Plant Rank - 1B.3	600 1,850	17 S:17	2	5	5	0	0	5	12	5	17	0	0
<i>Arctostaphylos manzanita ssp. laevigata</i> Contra Costa manzanita	G5T2 S2	None None	Rare Plant Rank - 1B.2	500 2,000	10 S:10	0	1	1	0	0	8	7	3	10	0	0
<i>Ardea herodias</i> great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	300 300	147 S:1	0	1	0	0	0	0	1	0	1	0	0
<i>Astragalus tener var. tener</i> alkali milk-vetch	G2T2 S2	None None	Rare Plant Rank - 1B.2	40 70	65 S:2	0	0	0	0	2	0	2	0	0	0	2
<i>Athene cunicularia</i> burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	25 888	1967 S:37	7	11	8	4	1	6	6	31	36	1	0
<i>Atriplex depressa</i> brittlescale	G2 S2	None None	Rare Plant Rank - 1B.2	160 500	61 S:3	0	1	1	0	0	1	1	2	3	0	0
<i>Atriplex minuscula</i> lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	507 507	37 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	500 500	50 S:2	1	0	0	0	0	1	1	1	2	0	0
<i>Blepharizonia plumosa</i> big tarplant	G2 S2	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	300 1,650	53 S:20	3	8	2	0	1	6	6	14	19	1	0
<i>Bombus caliginosus</i> obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	300 3,150	181 S:2	0	0	0	0	0	2	2	0	2	0	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Bombus crotchii</i> Crotch bumble bee	G3G4 S1S2	None None		50 2,000	234 S:4	0	0	0	0	0	4	4	0	4	0	0
<i>Bombus occidentalis</i> western bumble bee	G2G3 S1	None None	USFS_S-Sensitive XERCES_IM-Imperiled	25 2,000	282 S:10	0	0	0	0	0	10	10	0	10	0	0
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	220 500	765 S:6	0	1	3	0	0	2	2	4	6	0	0
<i>Buteo regalis</i> ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	400 640	107 S:3	1	0	1	0	0	1	0	3	3	0	0
<i>Buteo swainsoni</i> Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	50 2,000	2460 S:6	1	2	2	0	0	1	1	5	6	0	0
<i>Callophrys mossii bayensis</i> San Bruno elfin butterfly	G4T1 S1	Endangered None	XERCES_CI-Critically Imperiled	2,000 2,000	10 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Calochortus pulchellus</i> Mt. Diablo fairy-lantern	G2 S2	None None	Rare Plant Rank - 1B.2	450 3,000	52 S:47	2	15	5	2	0	23	13	34	47	0	0
<i>Campanula exigua</i> chaparral harebell	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	1,500 3,200	32 S:5	1	1	0	0	0	3	4	1	5	0	0
<i>Centromadia parryi ssp. congdonii</i> Congdon's tarplant	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	40 800	93 S:27	5	8	4	1	6	3	5	22	21	2	4
<i>Chloropyron palmatum</i> palmate-bracted salty bird's-beak	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	510 510	26 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Circus cyaneus</i> northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	900 900	53 S:1	1	0	0	0	0	0	1	0	1	0	0



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<i>Cordylanthus nidularius</i> Mt. Diablo bird's-beak	G1 S1	None Rare	Rare Plant Rank - 1B.1 BLM_S-Sensitive	1,600 2,400	2 S:2	0	1	0	0	0	1	0	2	2	0	0
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	G3G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	200 3,790	626 S:5	0	1	1	0	0	3	3	2	5	0	0
<i>Cryptantha hooveri</i> Hoover's cryptantha	GH SH	None None	Rare Plant Rank - 1A		4 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Danaus plexippus pop. 1</i> monarch - California overwintering population	G4T2T3 S2S3	None None	USFS_S-Sensitive	25 25	380 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Delphinium californicum ssp. interius</i> Hospital Canyon larkspur	G3T3 S3	None None	Rare Plant Rank - 1B.2	630 3,300	28 S:6	1	2	0	0	0	3	1	5	6	0	0
<i>Dipodomys heermanni berkeleyensis</i> Berkeley kangaroo rat	G3G4T1 S1	None None		3,200 3,200	7 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Efferia antiochi</i> Antioch efferian robberfly	G1G2 S1S2	None None		350 350	4 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Elanus leucurus</i> white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	408 600	174 S:2	1	1	0	0	0	0	1	1	2	0	0
<i>Emys marmorata</i> western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	3 1,980	1340 S:30	4	11	2	4	0	9	8	22	30	0	0
<i>Eremophila alpestris actia</i> California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	600 680	93 S:2	0	2	0	0	0	0	2	0	2	0	0
<i>Eriastrum ertterae</i> Lime Ridge eriastrum	G1 S1	None None	Rare Plant Rank - 1B.1	700 900	2 S:2	0	0	0	0	0	2	0	2	2	0	0
<i>Eriogonum truncatum</i> Mt. Diablo buckwheat	G1 S1	None None	Rare Plant Rank - 1B.1	350 1,150	7 S:6	1	0	0	0	1	4	4	2	5	1	0



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<i>Eryngium jepsonii</i> Jepson's coyote-thistle	G2 S2	None None	Rare Plant Rank - 1B.2	330 1,000	19 S:4	0	0	0	0	0	4	0	4	4	0	0
<i>Eumops perotis californicus</i> western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	120 120	294 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Extriplex joaquinana</i> San Joaquin spearscale	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	160 730	124 S:21	2	3	3	5	6	2	6	15	15	2	4
<i>Falco mexicanus</i> prairie falcon	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,535 1,860	459 S:5	5	0	0	0	0	0	0	5	5	0	0
<i>Falco peregrinus anatum</i> American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive CDFW_FP-Fully Protected USFWS_BCC-Birds of Conservation Concern	1,581 1,581	56 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Fritillaria liliacea</i> fragrant fritillary	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	400 850	82 S:7	0	1	1	2	0	3	2	5	7	0	0
<i>Grimmia torenii</i> Toren's grimmia	G2 S2	None None	Rare Plant Rank - 1B.3	3,025 3,805	13 S:2	0	0	0	0	0	2	0	2	2	0	0
<i>Helianthella castanea</i> Diablo helianthella	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	400 3,500	107 S:72	10	25	15	1	0	21	19	53	72	0	0
<i>Helminthoglypta nickliniana bridgesi</i> Bridges' coast range shoulderband	G3T1 S1S2	None None	IUCN_DD-Data Deficient	1,950 1,950	6 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Hesperolinon breweri</i> Brewer's western flax	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	650 2,900	25 S:18	2	5	0	0	0	11	8	10	18	0	0
<i>Hoita strobilina</i> Loma Prieta hoita	G2 S2	None None	Rare Plant Rank - 1B.1		34 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Holocarpha macradenia</i> Santa Cruz tarplant	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden		37 S:1	0	0	0	0	1	0	1	0	0	1	0



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<i>Isocoma arguta</i> Carquinez goldenbush	G1 S1	None None	Rare Plant Rank - 1B.1		14 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Juglans hindsii</i> Northern California black walnut	G1 S1	None None	Rare Plant Rank - 1B.1 SB_USDA-US Dept of Agriculture	550 550	5 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Lasiurus blossevillii</i> western red bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	15 15	126 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Lasiurus cinereus</i> hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority	60 60	236 S:4	0	0	0	0	0	4	3	1	4	0	0
<i>Lasthenia conjugens</i> Contra Costa goldfields	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	50 200	33 S:3	0	0	0	0	3	0	3	0	0	0	3
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	G4 S3S4	Endangered None	IUCN_EN-Endangered	330 330	324 S:1	0	0	1	0	0	0	0	1	1	0	0
<i>Linderiella occidentalis</i> California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	160 920	434 S:11	0	6	0	0	0	5	3	8	11	0	0
<i>Lytta molesta</i> molestan blister beetle	G2 S2	None None		400 400	17 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Madia radiata</i> showy golden madia	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	250 250	100 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Malacothamnus hallii</i> Hall's bush-mallow	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	600 1,500	36 S:7	1	0	0	1	1	4	4	3	6	1	0
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake	G4T2 S2	Threatened Threatened		175 3,785	163 S:96	24	28	5	1	4	34	34	62	92	4	0
<i>Microcina lumi</i> Lum's micro-blind harvestman	G1 S1	None None		400 600	2 S:2	0	0	0	0	0	2	2	0	2	0	0



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<i>Monolopia gracilens</i> woodland woollythreads	G3 S3	None None	Rare Plant Rank - 1B.2	1,500 3,000	57 S:6	0	0	0	0	0	6	3	3	6	0	0
<i>Myotis yumanensis</i> Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	380 380	263 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Navarretia gowenii</i> Lime Ridge navarretia	G1 S1	None None	Rare Plant Rank - 1B.1	600 1,000	3 S:2	0	0	0	0	0	2	0	2	2	0	0
<i>Navarretia nigelliformis ssp. radians</i> shining navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	260 1,700	72 S:3	0	0	1	0	0	2	0	3	3	0	0
<i>Navarretia prostrata</i> prostrate vernal pool navarretia	G2 S2	None None	Rare Plant Rank - 1B.1	340 340	60 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	G5T2T3 S2S3	None None	CDFW_SSC-Species of Special Concern	700 1,600	21 S:4	2	1	0	0	0	1	0	4	4	0	0
<i>Oenothera deltooides ssp. howellii</i> Antioch Dunes evening-primrose	G5T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden		10 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Perognathus inornatus</i> San Joaquin Pocket Mouse	G2G3 S2S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern	500 750	122 S:3	1	2	0	0	0	0	3	0	3	0	0
<i>Phacelia phacelioides</i> Mt. Diablo phacelia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	2,000 3,400	16 S:6	0	1	0	1	0	4	5	1	6	0	0
<i>Phrynosoma blainvillii</i> coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,224 1,462	771 S:2	1	1	0	0	0	0	0	2	2	0	0
<i>Plagiobothrys glaber</i> hairless popcornflower	GH SH	None None	Rare Plant Rank - 1A	20 350	9 S:3	0	0	0	0	3	0	2	1	0	3	0
<i>Polemonium carneum</i> Oregon polemonium	G3G4 S2	None None	Rare Plant Rank - 2B.2		16 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Puccinellia simplex</i> California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2	500 500	71 S:2	0	0	0	0	1	1	2	0	1	1	0



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<i>Rana boylei</i> foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	490 1,130	1693 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Rana draytonii</i> California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	130 2,175	1473 S:143	16	65	18	6	3	35	36	107	140	3	0
<i>Sanicula saxatilis</i> rock sanicle	G2 S2	None Rare	Rare Plant Rank - 1B.2 BLM_S-Sensitive	2,200 3,400	7 S:3	0	2	1	0	0	0	1	2	3	0	0
<i>Senecio aphanactis</i> chaparral ragwort	G3 S2	None None	Rare Plant Rank - 2B.2	1,000 1,000	82 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Serpentine Bunchgrass</i> Serpentine Bunchgrass	G2 S2.2	None None		1,300 2,000	22 S:2	0	1	0	0	0	1	2	0	2	0	0
<i>Setophaga petechia</i> yellow warbler	G5 S3S4	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	280 280	70 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Spergularia macrotheca var. longistyla</i> long-styled sand-spurrey	G5T2 S2	None None	Rare Plant Rank - 1B.2	500 500	22 S:3	0	0	0	0	1	2	1	2	2	1	0
<i>Streptanthus albidus ssp. peramoenus</i> most beautiful jewelflower	G2T2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	745 2,400	103 S:6	1	2	0	0	0	3	2	4	6	0	0
<i>Streptanthus hispidus</i> Mt. Diablo jewelflower	G2 S2	None None	Rare Plant Rank - 1B.3	820 3,200	8 S:8	0	4	3	1	0	0	5	3	8	0	0
<i>Stuckenia filiformis ssp. alpina</i> slender-leaved pondweed	G5T5 S3	None None	Rare Plant Rank - 2B.2	600 600	21 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Sycamore Alluvial Woodland</i> Sycamore Alluvial Woodland	G1 S1.1	None None		500 500	17 S:1	0	0	1	0	0	0	1	0	1	0	0
<i>Taxidea taxus</i> American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	179 800	544 S:10	2	3	2	0	0	3	5	5	10	0	0



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<i>Trifolium hydrophilum</i> saline clover	G2 S2	None None	Rare Plant Rank - 1B.2	350 350	49 S:1	0	0	0	0	1	0	0	1	0	1	0
<i>Triquetrella californica</i> coastal triquetrella	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	3,849 3,849	13 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Tropidocarpum capparideum</i> caper-fruited tropidocarpum	G1 S1	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	400 540	18 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Valley Needlegrass Grassland</i> Valley Needlegrass Grassland	G3 S3.1	None None		500 500	45 S:2	0	0	1	0	0	1	2	0	2	0	0
<i>Valley Sink Scrub</i> Valley Sink Scrub	G1 S1.1	None None		510 510	29 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Viburnum ellipticum</i> oval-leaved viburnum	G4G5 S3?	None None	Rare Plant Rank - 2B.3	600 1,500	38 S:5	1	0	0	0	0	4	3	2	5	0	0
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	G4T2 S2	Endangered Threatened		220 800	1017 S:12	2	4	0	0	0	6	12	0	12	0	0

Scientific Name	Common Name	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat	Micro Habitat	Elevation Low (m)	Elevation Low (ft)	Elevation High (m)	Elevation High (ft)	CA Endemic
<i>Amsinckia grandiflora</i>	large-flowered fiddleneck	annual herb	1B.1	CE	FE	(Mar)Apr-May	Cismontane woodland, Valley and foothill grassland		270	885	550	1805	T
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	annual herb	1B.2	None	None	Mar-Jun	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland		3	5	500	1640	T
<i>Androsace elongata</i> ssp. <i>acuta</i>	California androsace	annual herb	4.2	None	None	Mar-Jun	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland		150	490	1305	4280	F
<i>Anomobryum julaceum</i>	slender silver moss	moss	4.2	None	None		Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	damp rock and soil on outcrops, usually on roadcuts	100	325	1000	3280	F
<i>Arabis blepharophylla</i>	coast rockcress	perennial herb	4.3	None	None	Feb-May	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub	rocky	3	5	1100	3610	T
<i>Arctostaphylos auriculata</i>	Mt. Diablo manzanita	perennial evergreen shrub	1B.3	None	None	Jan-Mar	Chaparral (sandstone), Cismontane woodland		135	440	650	2135	T
<i>Arctostaphylos manzanita</i> ssp. <i>laevigata</i>	Contra Costa manzanita	perennial evergreen shrub	1B.2	None	None	Jan-Mar(Apr)	Chaparral (rocky)		430	1410	1100	3610	T
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	annual herb	1B.2	None	None	Mar-Jun	Playas, Valley and foothill grassland (adobe clay), Vernal pools	alkaline	1	0	60	195	T
<i>Atriplex cordulata</i> var. <i>cordulata</i>	heartscale	annual herb	1B.2	None	None	Apr-Oct	Chenopod scrub, Meadows and seeps, Valley and foothill grassland (sandy)	saline or alkaline	0	0	560	1835	T
<i>Atriplex coronata</i> var. <i>coronata</i>	crownscale	annual herb	4.2	None	None	Mar-Oct	Chenopod scrub, Valley and foothill grassland, Vernal pools	alkaline, often clay	1	0	590	1935	T
<i>Atriplex depressa</i>	brittlescale	annual herb	1B.2	None	None	Apr-Oct	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools	alkaline, clay	1	0	320	1050	T
<i>Atriplex minuscula</i>	lesser saltscale	annual herb	1B.1	None	None	May-Oct	Chenopod scrub, Playas, Valley and foothill grassland	alkaline, sandy	15	45	200	655	T
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	perennial herb	1B.2	None	None	Mar-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	sometimes serpentinite	45	145	1555	5100	T
<i>Blepharizonia plumosa</i>	big tarplant	annual herb	1B.1	None	None	Jul-Oct	Valley and foothill grassland	Usually clay.	30	95	505	1655	T
<i>Calandrinia breweri</i>	Brewer's calandrinia	annual herb	4.2	None	None	(Jan)Mar-Jun	Chaparral, Coastal scrub	sandy or loamy, disturbed sites and burns	10	30	1220	4005	F

Calochortus pulchellus	Mt. Diablo fairy-lantern	perennial bulbiferous herb	1B.2	None	None	Apr-Jun	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland		30	95	840	2755	T
Calochortus umbellatus	Oakland star-tulip	perennial bulbiferous herb	4.2	None	None	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland	often serpentinite	100	325	700	2295	T
Campanula exigua	chaparral harebell	annual herb	1B.2	None	None	May-Jun	Chaparral (rocky, usually serpentinite)		275	900	1250	4100	T
Castilleja ambigua var. ambigua	johnny-nip	annual herb (hemiparasitic)	4.2	None	None	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins		0	0	435	1425	F
Centromadia parryi ssp. congdonii	Congdon's tarplant	annual herb	1B.1	None	None	May-Oct(Nov)	Valley and foothill grassland (alkaline)		0	0	230	755	T
Chloropyron palmatum	palmate-bracted bird's-beak	annual herb (hemiparasitic)	1B.1	CE	FE	May-Oct	Chenopod scrub, Valley and foothill grassland	alkaline	5	15	155	510	T
Clarkia concinna ssp. automixa	Santa Clara red ribbons	annual herb	4.3	None	None	(Apr)May-Jun(Jul)	Chaparral, Cismontane woodland		90	295	1500	4920	T
Collomia diversifolia	serpentine collomia	annual herb	4.3	None	None	May-Jun	Chaparral, Cismontane woodland	serpentinite, rocky or gravelly	200	655	600	1970	T
Convolvulus simulans	small-flowered morning-glory	annual herb	4.2	None	None	Mar-Jul	Chaparral (openings), Coastal scrub, Valley and foothill grassland	clay, serpentinite seeps	30	95	740	2430	F
Cordylanthus nidularius	Mt. Diablo bird's-beak	annual herb (hemiparasitic)	1B.1	CR	None	Jun-Aug	Chaparral (serpentinite)		600	1965	800	2625	T
Cryptantha hooveri	Hoover's cryptantha	annual herb	1A	None	None	Apr-May	Inland dunes, Valley and foothill grassland (sandy)		9	25	150	490	T
Delphinium californicum ssp. interius	Hospital Canyon larkspur	perennial herb	1B.2	None	None	Apr-Jun	Chaparral (openings), Cismontane woodland (mesic), Coastal scrub		195	635	1095	3595	T
Dirca occidentalis	western leatherwood	perennial deciduous shrub	1B.2	None	None	Jan-Mar(Apr)	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland	mesic	25	80	425	1395	T
Eriastrum ertterae	Lime Ridge eriastrum	annual herb	1B.1	None	None	Jun-Jul	Chaparral (openings or edges)	Alkaline or semi-alkaline, sandy.	200	655	290	950	T
Eriogonum truncatum	Mt. Diablo buckwheat	annual herb	1B.1	None	None	Apr-Sep(Nov-Dec)	Chaparral, Coastal scrub, Valley and foothill grassland	sandy	3	5	350	1150	T

<i>Eriophyllum jepsonii</i>	Jepson's woolly sunflower	perennial herb	4.3	None	None	Apr-Jun	Chaparral, Cismontane woodland, Coastal scrub	sometimes serpentinite	200	655	1025	3365	T
<i>Eryngium jepsonii</i>	Jepson's coyote thistle	perennial herb	1B.2	None	None	Apr-Aug	Valley and foothill grassland, Vernal pools	clay	3	5	300	985	T
<i>Eschscholzia rhombipetala</i>	diamond-petaled California poppy	annual herb	1B.1	None	None	Mar-Apr	Valley and foothill grassland (alkaline, clay)		0	0	975	3200	T
<i>Extriplex joaquinana</i>	San Joaquin spearscale	annual herb	1B.2	None	None	Apr-Oct	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland	alkaline	1	0	835	2740	T
<i>Fritillaria agrestis</i>	stinkbells	perennial bulbiferous herb	4.2	None	None	Mar-Jun	Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland	Clay, sometimes serpentinite	10	30	1555	5100	T
<i>Fritillaria liliacea</i>	fragrant fritillary	perennial bulbiferous herb	1B.2	None	None	Feb-Apr	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland	Often serpentinite	3	5	410	1345	T
<i>Galium andrewsii</i> ssp. <i>gatense</i>	phlox-leaf serpentine bedstraw	perennial herb	4.2	None	None	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest	serpentinite, rocky	150	490	1450	4755	T
<i>Grimmia torenii</i>	Toren's grimmia	moss	1B.3	None	None		Chaparral, Cismontane woodland, Lower montane coniferous forest	Openings, rocky, boulder and rock walls, carbonate, volcanic	325	1065	1160	3805	T
<i>Helianthella castanea</i>	Diablo helianthella	perennial herb	1B.2	None	None	Mar-Jun	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland	Usually rocky, axonal soils. Often in partial shade	60	195	1300	4265	T
<i>Hesperolinon breweri</i>	Brewer's western flax	annual herb	1B.2	None	None	May-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland	usually serpentinite	30	95	945	3100	T
<i>Holocarpha macradenia</i>	Santa Cruz tarplant	annual herb	1B.1	CE	FT	Jun-Oct	Coastal prairie, Coastal scrub, Valley and foothill grassland	often clay, sandy	10	30	220	720	T
<i>Iris longipetala</i>	coast iris	perennial rhizomatous herb	4.2	None	None	Mar-May	Coastal prairie, Lower montane coniferous forest, Meadows and seeps	mesic	0	0	600	1970	T
<i>Juglans californica</i>	Southern California black walnut	perennial deciduous tree	4.2	None	None	Mar-Aug	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland	alluvial	50	160	900	2955	T
<i>Juglans hindsii</i>	Northern California black walnut	perennial deciduous tree	1B.1	None	None	Apr-May	Riparian forest, Riparian woodland		0	0	440	1445	T
<i>Lasthenia conjugens</i>	Contra Costa goldfields	annual herb	1B.1	None	FE	Mar-Jun	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools	mesic	0	0	470	1540	T

Lathyrus jepsonii var. jepsonii	Delta tule pea	perennial herb	1B.2	None	None	May-Jul(Aug-Sep)	Marshes and swamps (freshwater and brackish)		0	0	5	15	T
Leptosiphon acicularis	bristly leptosiphon	annual herb	4.2	None	None	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland		55	180	1500	4920	T
Madia radiata	showy golden madia	annual herb	1B.1	None	None	Mar-May	Cismontane woodland, Valley and foothill grassland		25	80	1215	3985	T
Malacothamnus hallii	Hall's bush-mallow	perennial evergreen shrub	1B.2	None	None	(Apr)May-Sep(Oct)	Chaparral, Coastal scrub		10	30	760	2495	T
Micropus amphibolus	Mt. Diablo cottonweed	annual herb	3.2	None	None	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland	rocky	45	145	825	2705	T
Monardella antonina ssp. antonina	San Antonio Hills monardella	perennial rhizomatous herb	3	None	None	Jun-Aug	Chaparral, Cismontane woodland		320	1045	1000	3280	T
Monolopia gracilens	woodland woollythreads	annual herb	1B.2	None	None	(Feb)Mar-Jul	Broadleafed upland forest (openings), Chaparral (openings), Cismontane woodland, North Coast coniferous forest (openings), Valley and foothill grassland	Serpentine	100	325	1200	3935	T
Navarretia gowenii	Lime Ridge navarretia	annual herb	1B.1	None	None	May-Jun	Chaparral		180	590	305	1000	T
Navarretia heterandra	Tehama navarretia	annual herb	4.3	None	None	Apr-Jun	Valley and foothill grassland (mesic), Vernal pools		30	95	1010	3315	F
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	annual herb	4.2	None	None	Apr-Jun	Valley and foothill grassland vernally mesic, Vernal pools sometimes	clay, sometimes serpentinite	100	325	1000	3280	T
Navarretia nigelliformis ssp. radians	shining navarretia	annual herb	1B.2	None	None	(Mar)Apr-Jul	Cismontane woodland, Valley and foothill grassland, Vernal pools	Sometimes clay	65	210	1000	3280	T
Navarretia prostrata	prostrate vernal pool navarretia	annual herb	1B.1	None	None	Apr-Jul	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools	Mesic	3	5	1210	3970	T
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	perennial herb	1B.1	CE	FE	Mar-Sep	Inland dunes		0	0	30	100	T
Phacelia phacelioides	Mt. Diablo phacelia	annual herb	1B.2	None	None	Apr-May	Chaparral, Cismontane woodland	rocky	500	1640	1370	4495	T
Piperia michaelii	Michael's rein orchid	perennial herb	4.2	None	None	Apr-Aug	Coastal bluff scrub, Closed-cone coniferous forest, Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest		3	5	915	3000	T

Plagiobothrys glaber	hairless popcornflower	annual herb	1A	None	None	Mar-May	Meadows and seeps (alkaline), Marshes and swamps (coastal salt)		15	45	180	590	T
Polemonium carneum	Oregon polemonium	perennial herb	2B.2	None	None	Apr-Sep	Coastal prairie, Coastal scrub, Lower montane coniferous forest		0	0	1830	6005	F
Puccinellia simplex	California alkali grass	annual herb	1B.2	None	None	Mar-May	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools	Alkaline, vernal mesic; sinks, flats, and lake margins	2	5	930	3050	F
Ranunculus lobbii	Lobb's aquatic buttercup	annual herb (aquatic)	4.2	None	None	Feb-May	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools	mesic	15	45	470	1540	F
Sanicula saxatilis	rock sanicle	perennial herb	1B.2	CR	None	Apr-May	Broadleaved upland forest, Chaparral, Valley and foothill grassland	rocky, scree, talus	620	2030	1175	3855	T
Senecio aphanactis	chaparral ragwort	annual herb	2B.2	None	None	Jan-Apr(May)	Chaparral, Cismontane woodland, Coastal scrub	sometimes alkaline	15	45	800	2625	F
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	annual herb	1B.2	None	None	(Mar)Apr-Sep(Oct)	Chaparral, Cismontane woodland, Valley and foothill grassland	serpentinite	95	310	1000	3280	T
Streptanthus hispidus	Mt. Diablo jewelflower	annual herb	1B.3	None	None	Mar-Jun	Chaparral, Valley and foothill grassland	rocky	365	1195	1200	3935	T
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	perennial rhizomatous herb (aquatic)	2B.2	None	None	May-Jul	Marshes and swamps (assorted shallow freshwater)		300	980	2150	7055	F
Trifolium hydrophilum	saline clover	annual herb	1B.2	None	None	Apr-Jun	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools		0	0	300	985	T
Triquetrella californica	coastal triquetrella	moss	1B.2	None	None		Coastal bluff scrub, Coastal scrub	soil	10	30	100	330	F
Tropidocarpum capparideum	caper-fruited tropidocarpum	annual herb	1B.1	None	None	Mar-Apr	Valley and foothill grassland (alkaline hills)		1	0	455	1495	T
Viburnum ellipticum	oval-leaved viburnum	perennial deciduous shrub	2B.3	None	None	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest		215	705	1400	4595	F



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
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Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

April 18, 2018

Consultation Code: 08ESMF00-2017-SLI-2416

Event Code: 08ESMF00-2018-E-05505

Project Name: EBMUD R3000 Pump Station Staging Area 2 (Crow Canyon Road Study Area)

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2017-SLI-2416

Event Code: 08ESMF00-2018-E-05505

Project Name: EBMUD R3000 Pump Station Staging Area 2 (Crow Canyon Road Study Area)

Project Type: WATER SUPPLY / DELIVERY

Project Description: The Project would be owned and operated by EBMUD and would enhance the provision of recycled water to areas served only by EBMUD within the DERWA system through construction of a new pump station.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.78733948250803N121.93260853202709W>



Counties: Contra Costa, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior



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In Reply Refer To:

April 26, 2018

Consultation Code: 08ESMF00-2018-SLI-1964

Event Code: 08ESMF00-2018-E-05730

Project Name: EBMUD R3000 Dougherty Road Study Area

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

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New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

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- Official Species List

Official Species List

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This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-1964

Event Code: 08ESMF00-2018-E-05730

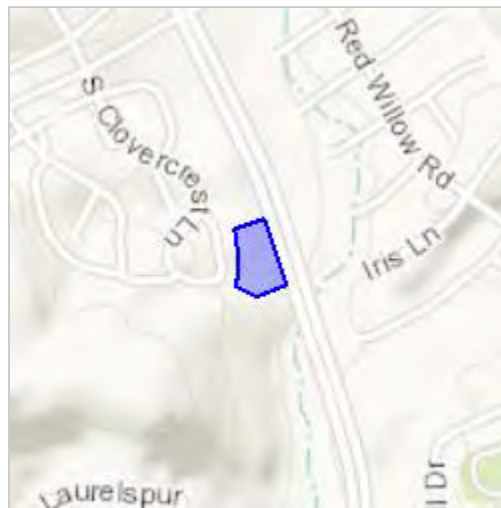
Project Name: EBMUD R3000 Dougherty Road Study Area

Project Type: WATER SUPPLY / DELIVERY

Project Description: The Project would be owned and operated by EBMUD and would enhance the provision of recycled water to areas served only by EBMUD within the DERWA system through construction of a new pump station.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.7837475228788N121.92423808806936W>



Counties: Contra Costa, CA

Endangered Species Act Species

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Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

April 26, 2018

Consultation Code: 08ESMF00-2018-SLI-1963

Event Code: 08ESMF00-2018-E-05728

Project Name: EBMUD R3000 Lilac Ridge Road Study Area

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-1963

Event Code: 08ESMF00-2018-E-05728

Project Name: EBMUD R3000 Lilac Ridge Road Study Area

Project Type: WATER SUPPLY / DELIVERY

Project Description: The Project would be owned and operated by EBMUD and would enhance the provision of recycled water to areas served only by EBMUD within the DERWA system through construction of a new pump station.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.781594800975114N121.9280192894553W>



Counties: Contra Costa, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX D

Mitigation Monitoring and Reporting Plan

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**APPENDIX D
MITIGATION MONITORING AND REPORTING PLAN**

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementing	Applicable Sites	
					Site A2	Site A4
Aesthetics						
Impact Aesthetics d) Potential to create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	Mitigation Measure AES-1: Shield Night Lighting. Stationary lighting used during nighttime construction (if required) shall be shielded and directed downward or oriented such that the light source is not directed toward residential areas or into streets.	EBMUD and EBMUD's Construction Contractor	EBMUD	During Construction	X	X
Biological Resources						
Impact Biology a) Potential to have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for California Red-legged Frog. Within 24 hours before any construction activities that involve ground disturbance or vegetation removal a USFWS approved biologist will conduct pre-construction surveys for California red-legged frog at Site A2. The survey area will include all habitats suitable for these species within a 300-foot buffer of the work limits. Whenever a lapse in project-related construction activity of 2 weeks or greater has occurred these areas will be re-inspected. If California red-legged frog(s) (including eggs, larvae, or adult forms) is/are found during pre-construction surveys, the biologist will contact USFWS and/or CDFW to determine whether their relocation is appropriate and if additional measures are necessary. Construction activities will not proceed until consultation and/or relocation activities are complete. A monitoring report of all activities associated with surveys and mitigation for this species will be submitted to the USFWS and CDFW by EBMUD no later than three months after construction is completed. The monitoring report will describe methods and results of any field survey efforts and mitigation measures implemented before, during or after project construction.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to Construction	X	
	Mitigation Measure BIO-2: Wildlife Exclusion Fencing. A multi-purpose protective barrier (such as silt fencing) or CDFW-approved species exclusion fencing shall be constructed at Site A2 to deter common and special status wildlife in West Alamo Creek riparian corridor from entering into the Project construction work limits. Fence installation shall be overseen by a qualified biologist. The fence shall be a minimum height of 3 feet above ground surface and with an additional 4-6 inches of fence material buried such that species cannot crawl under the fence. The fencing will be installed along the south boundary of Site A2, starting from Dougherty Road and extending 265 linear feet west to the West Alamo Creek Trail. The barrier shall be installed adjacent to the existing chain-link fence, where feasible. At the southeastern boundary of Site A2, the exclusion fence shall extend 90 linear feet to the south along the existing chain-link fence.	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to Construction	X	

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementing	Applicable Sites	
					Site A2	Site A4
Biological Resources (cont.)						
Impact Biology a) Potential to have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (cont.)	<ul style="list-style-type: none"> The fencing will contain one-way egress for sensitive species to the extent possible; Signage shall be installed on the fencing to identify sensitive habitat areas and restrict construction activities; No equipment mobilization, grading, clearing, or storage of equipment or machinery, or similar activity shall occur at the project site until a qualified biologist has inspected and approved the wildlife exclusion fencing; and The District shall ensure that the temporary fencing is continuously maintained until all construction is complete. 					
Cultural Resources						
Impact Cultural c) Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	<p>Mitigation Measure CUL-1: Paleontological Resources Monitoring and Mitigation Program.</p> <p>a) A professional paleontologist shall provide sensitivity training to supervisory staff to alert construction workers to the possibility of exposing significant paleontological resources within the Project area. The training shall be conducted as defined by the Society of Vertebrate Paleontology's Conformable Impact Mitigation Guidelines Committee (1995), to recognize fossil materials in the event that any are uncovered during construction. This training shall be specific to paleontological resources and supplement the cultural resources training required by EBMUD specification 01 35 44, Environmental Requirements, Section 3.9, Protection of Cultural and Paleontological Resources.</p> <p>b) An "Alert Sheet" shall be posted in staging areas, such as in construction trailers, to alert personnel to the procedures and protocols to follow for the discovery of unique paleontological resources.</p> <p>c) During construction, earth-moving activities shall be monitored by a qualified paleontological consultant having expertise in California paleontology. In the event that a paleontological resource is uncovered during Project construction, all ground disturbing work within 100 feet shall be halted. A qualified paleontologist shall inspect the discovery and determine whether further investigation is required.</p> <p>d) If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA, Appendix G, part V.</p>	EBMUD and EBMUD's Construction Contractor	EBMUD	Prior to and During Construction	X	X

Impacts Being Mitigated	Mitigation Measure	Responsible for Implementation	Responsible for Monitoring and/or Enforcement	Timing of Implementing	Applicable Sites	
					Site A2	Site A4
Cultural Resources (cont.)						
Impact Cultural c) Potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (cont.)	<p>e) If the resource is determined not to be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the paleontologist shall, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology (SVP) standards, and in consultation with EBMUD.</p> <p>f) Treatment would ensure that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified paleontologist. All recovered fossils shall be offered to be curated at an accredited and permanent scientific institutions according to SVP standard guidelines for curation. Work may commence upon completion of treatment.</p>					
Mandatory Findings of Significance						
Impact Mandatory Findings a) Potential for the project to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.	<p>Mitigation Measure AES-1: Shield Night Lighting. (see Impact Aesthetics d, above)</p> <p>Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for California Red-legged Frog. (see Impact Biology a, above)</p> <p>Mitigation Measure BIO-2: Wildlife Exclusion Fencing. (see Impact Biology a, above)</p> <p>Mitigation Measure CUL-1: Paleontological Resources Monitoring and Mitigation Program. (see Impact Cultural c, above)</p>	See above	EBMUD	See above	X	X
Impact Mandatory Findings c) Potential to have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.	<p>Mitigation Measure AES-1: Shield Night Lighting. (see Impact Aesthetics d, above)</p> <p>Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for California Red-legged Frog. (see Impact Biology a, above)</p> <p>Mitigation Measure BIO-2: Wildlife Exclusion Fencing. (see Impact Biology a, above)</p> <p>Mitigation Measure CUL-1: Paleontological Resources Monitoring and Mitigation Program. (see Impact Cultural c, above)</p>	See above	EBMUD	See above	X	X